EXCLUSIVE CUTAWAY:

AK MILLER MILLE MIGLIA CHRYSLER

SPORTS CARS ILLUSTRATED

APRIL 1957 35¢

Special: NEW RULES FOR SEBRING

THE ULTIMATE BUGATTI

BY KEN W. PURDY

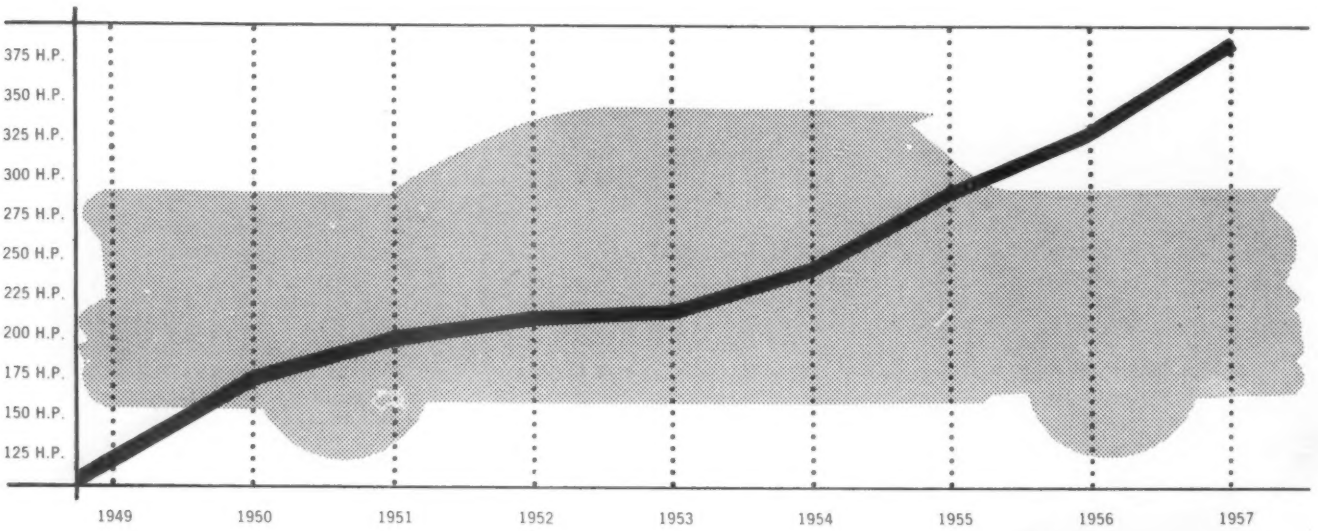
How To: USE RACING FUELS

SUPERCHARGE THE VW

The higher HP goes, the more you need

CASTROL

The Masterpiece in Oils



The trend to more horsepower per pound of engine means... Better performance? Yes. But more lubrication problems, too. It means, more than ever, you need CASTROL, the one motor oil made specifically for today's passenger cars.

DISTRIBUTED BY:

S. H. ARNOLT, INC.
415 East Erie Street, Chicago, Illinois

ART'S SPORTS & UTILITY MOTORS
7814 Wornall Road, Kansas City 14, Missouri

BRITISH AUTO PARTS
530 Golden Gate Ave., San Francisco, Calif.

BRUNDAGE MOTORS
738 Spring Street, N.W., Atlanta, Georgia
10 S. Royal Poinciana Blvd., Miami Springs, Florida

F.-A. MOTORS, INC.
209 Clinton Ave., North at Cumberland,
Rochester 4, N. Y.

FALVEY MOTOR SALES CO.
22600 Woodward Ave., Detroit, Michigan

GLOBE AUTOMOTIVE IMPORTS INC.
151 Ward St., Montgomery, New York

HADDON & WILLIAMS INC.
815-817 South 53rd St., Philadelphia 43, Penna.

IDEAL MOTOR PRODUCTS CO.
1741 Massachusetts Ave., Cambridge, Mass.

IMPERIAL MOTORS OF NORTH CAROLINA
621 W. Morehead St., Charlotte 8, North Carolina

IMPERIAL MOTORS (VIRGINIA) INC.
Washington & Academy Streets, Hampton, Virginia

MANHATTAN AUTO INC.
80th, 7th & R Sts., Washington, D. C.

JACK McAFEE MOTORS
13323 Ventura Blvd., Sherman Oaks, Calif.

NEMITH AUTO COMPANY OF LATHAM, INC.
Route 9, Latham, New York

NIAGARA LUBRICANT COMPANY INC.
103-105 Manitoba Street, Buffalo 6, New York

SIMMS-MARTIN, INC.
Saylorsburg, Penna.

SOMMER DISTRIBUTING
322 Westland Ave. N.E., Massillon, Ohio

SUBURBAN AUTOMOTIVE CO.
Raritan Rd. & Walnut Ave., Cranford, N. J.

Dealer inquiries invited

CASTROL OILS, Incorporated

75 WEST STREET, NEW YORK 6, N. Y.

A division of the Wakefield Group

B 641299

VOLKSWAGEN OWNER'S HANDBOOK OF REPAIR & MAINTENANCE

PRICE $2.00

Just published is the first book of its kind for the owner who wants to know & do more about his VW. With many illustrations & diagrams provided by the VW firm & the clear concise text this manual published by Floyd Clymer & edited by Hank Elfrink covers the following items:

- ENGINE
- FANHOUSING
- OIL COOLER
- FUEL SYSTEM
- GENERATING SYSTEM
- IGNITION SYSTEM
- STARTING SYSTEM
- CLUTCH
- TRANSMISSION
- FINAL DRIVE
- REAR AXLE
- REAR SUSPENSION
- BRAKES
- FRONT SUSPENSION
- FRONT AXLE ASSEMBLY
- STEERING
- LUBRICATION
- SPECIFICATIONS

This isn't a complete shop manual but it's as close as you're likely to get.

THE VOLKSWAGEN STORY "BEYOND EXPECTATION"

A most unusual story of a car and the remarkable life of Dr. Porsche, its designer. Laced with history, war, political intrigue and intimate detail, the book reads like a novel. **AN OWNER'S MUST . . . AN ENTHUSIAST'S REFERENCE . . . . .**

Price $4.00

NEW BOOKS

HI PERFORMANCE CARS 1956-57.....$2.00
Latest & best edition of the annual famous for its road tests, technical articles & marvelous drawings of the years high output cars.
(1956 & 1955 Still available at $2.00 each)
SPECIAL all 3 issues to date.....$5.00

THE RACING CAR.....$6.50
Quoted in England as "The Poor Man's Pomeroy" (Grand Prix Car—2 Vols.) this book traces the GP racing car from 1895 to the present. The technical detail is concise but thoro & the illustrations (105) include 39 whole page dwgs. of the outstanding cars. Short of The Grand Prix Car this is it!

ECONOMY CAR BLITZ.....$3.50
"Compare all of the small foreign cars before you buy" says the author & gives the dope to do it with.

YOU CAN DRAW CARS

From pencil sketch to finished rendering text & drawings teach you how to put your ideas on paper to look like cars that can be built.
Price $2.50

FAMOUS AUTO RALLIES & RACES.....$5.00
Much better good-reading than most books attempting to cover such a broad subject, this one is replete with factual incident & anecdote that informs as well as entertains the reader.

1956 MOTOR ROAD TESTS.....$2.00
Unbiased accurate & thoro reports on the years cars. Includes 2.4 Jag; TR3; VW; Volvo & 26 others.

1956 AUTOCAR ROAD TESTS.....$2.00
Some duplication with above but different slant. Equally accurate & has many cars not in Motor annual.
BUY 'EM BOTH to compare figures for.....$3.50

TUNING FOR SPEED & ECONOMY.....$4.00
Even an amateur mechanic can work from this.

DESIGN & TUNING COMPETITION ENGINES.....$7.50
Specific & general advanced tuning for competition.

RALLY EQUIPMENT

Blackwell Average Speed Calculators are imported from England where they are an indispensable part of the Motor Rally Scene. Finest materials & workmanship are used to produce all of the following engraved heavy celluloid instruments.

Mk. I . . . The old stand-by & beginner's choice 5½" dial.....$ 4.50
Mk. II . . . For race or rally—8" dial—greatest accuracy.....$ 7.50
Mk. IV . . . Long rallies 3 to 3000 mi 18/180 mph range.....$12.50
Mk. V . . . Latest & most accurate 6/60 mph 1/10 to 100 mi.....$ 9.00

RALLIES TRIALS & GYMKHANAS.....$5.00
For Beginner . . . complete coverage that leaves no stone unturned . . . no question unanswered.
For Expert . . . polishes rough edges for SMOOTH finishes. ONLY complete book on the subject.

The Annual Automobile Review

1957 . . . Price $9.95 ppd.

For the fourth consecutive year this King Size (9½"x12½") publication holds the spotlight as the most beautiful of all automotive publications regardless of price or class.

In addition to 28 full color plates of unbelievable brilliancy and artistic detail there are literally hundreds of black & white photos of unequalled excellence as well as drawings, maps, and charts to illustrate the articles and race descriptions that are contained within its 256 pages.

Brief Table of Contents includes

CARS OF THE YEAR
Photos & spex of all cars produced or shown in 1956 & the 1957 models at London & Paris Shows.

DREAM CARS & SPECIAL BODIES
Cars you won't see on the streets. Experimental & prototypes from U. S. & Europe.

EUROPEAN TOURING CHAMPIONSHIP
Maurice Gatsonides, leading rally contender analyzes & reports on all Rally Championship events.

ALL 1956 CHAMPIONSHIP RACES
In detail all GP races for World Driver points including Argentina, France, Germany, Indianapolis, etc., as well as those for Sports Car Championship; with a special report on Le Mans.

JET ENGINE PROGRESS REPORT
Basic jet engine theory & details of current turbine engined cars. The most comprehensive article ever written for the general public on gas turbines & free piston engine development.

THE ROLLS ROYCE TRADITION
Too little known facts & stories are known about "The Best Car in the World" and its background. Here are told many of them along with the 8-cylinder Rolls story . . . the most exclusive car in the world.

SPECIAL OFFER

We have some of the 1956 edition left as well as a few of the 1954 (first) edition. (The 1955 is completely out of print). Each is equally beautiful in presentation and is complementary with the other for the year covered. Priced separately the 1954 is $6.50 and the 1956 $7.50 . . . **BUT** . . . if ordered with the 1957 you get all three for $21.50 . . . This offer good only so long as supplies last. It cannot be duplicated elsewhere in the **WORLD!!** If after you have seen the 1957 edition and wish the 1954 & 1956 issues they may be had for $12.50.

FREE
WITH ANY ORDER OVER $2.50
MOTOR SPECIFICATIONS & PRICES of 1957 CARS

A small but complete booklet giving details of 163 models by 71 manufacturers (17 of them U.S.) including Alfa Romeo, Bentley, Mercedes, Porsche, Rolls Royce, Lotus, Jaguar, etc. Spex include Engine, Transmission, Chassis details & dimensions with brief but informative performance data.....**Price 50¢**

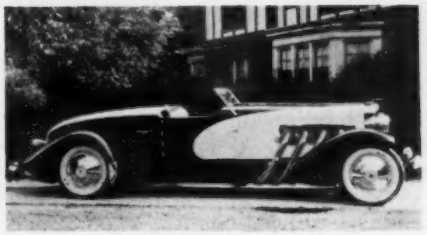


PHOTO ALBUMS

Autobooks photo albums each contain 10 5"x7" glossy prints of the subject cars in show condition. Unless of exceptional interest there is only one photo of any specific car in the whole series. Order by car name and album number.....**Price $3.50 ea.**

MERCEDES Nos. 1 thru 5
BUGATTI Nos. 1 thru 7
LINCOLN No. 1
ROLLS-ROYCE Nos. 1 thru 5
DUESENBERG Nos. 1 thru 6
BENTLEY No. 1

SPECIAL—Any 3 Albums $10.00

SAFETY BELTS FOR RACING OR ROAD

The Safest belt you will ever own

- U. S. Air Force 100% NYLON
- 3 inch wide full length
- Latest type heavy metal bars
- Quickest release type ever

$9.95 each postpaid

Or fitted with all attaching hardware and ready to install.....$11.95

Dealer inquiries invited

RACING SPORTS CARS

By Klemantaski & Frostick

Price $2.95

Opening with a fairly clear cut definition of the sports car Super Race photographer Klemantaski & author Frostick team up to describe with action photo and accurate text the qualities and techniques required for handling this breed of competition car.
Whether you're a budding Moss or first time spectator this volume will give you a better understanding of the Racing Sports Car; the whys and wherefores behind it and its driver.
Only Klemantaski's camera could catch 134 comparable scenes.

DRIVERS IN ACTION

By Klemantaski & Frostick

Top notch photographer & writer combine efforts & produce an unparalleled action-picture-text depicting the style & temperament, with personal details and records of Fangio, Moss, Farina, Trintignat, Ascari, Gonzales, Villoresi & others. 113 photos.....**Price $3.50**

Stirling Moss's BOOK OF MOTOR SPORT

Reviewed as a MUST for tyro or expert the book is also for all who would know more of all types of competition, drivers, the cars and events. Should be read by all who participate or attend.....**Price $3.00**

CAR DRIVING AS AN ART.....$3.00
S. C. H. Davis shows there IS an art to driving and that it can be polished by contact with a master. Mr. Davis is that master and in his book proves though you have been driving for years there is still much to learn. A chapter on Driving for Performance for the competition minded is the best in the book.

M G MAINTENANCE

M. G. WORKSHOP MANUAL (1930 to TF 1500)..$7.50
Overhaul & tune any MG from bumper to tail light.
TUNING & MAINTENANCE OF MG's.....$4.00
Top British tuner gives details & pointers.
SPECIAL MG ENGINE TUNING (All XPAG eng.)..$1.00
Speed tuning & spcl. part nos. therefor.
MG TD-TF SHOP MANUAL.....$5.50
MG "A" SHOP MANUAL.....$5.50
MG MAGNETTE (ZA) SHOP MANUAL.....$5.50
MG TC OWNERS HANDBOOK.....$2.50

OTHER SHOP MANUALS

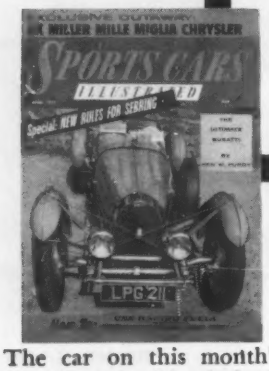
AUSTIN HEALEY 100.....$8.50
RILEY MAINTENANCE MANUAL (allmods).....$8.50
CROSLEY (all Models).....$6.00
Factory manual delivery subject to stocks available.

In California PLEASE add 4% tax on all orders.

AUTOBOOKS . . . 2708B MAGNOLIA BLVD., BURBANK 4, CALIFORNIA . . . Phone THornwall 2-8696

SPORTS CARS ILLUSTRATED

april 1957
no. 10 vol. 2



The car on this month's cover is a rare thing indeed. It's the 3.3 Type 59 Bugatti, the last of the truly great Bugs. For details see Ken Purdy's story which begins on page 28. The Anscochrome was made by Photographer Irv Dolin.

CONTENTS

road tests

features

how to

technical

competition

departments

BRANCH OFFICES: Chicago Office, 64 E. Lake St., Chicago 1, Ill.; Los Angeles Office, 215 West 7th Street, Los Angeles 14, Calif.

SPORTS CARS ILLUSTRATED is published monthly by the Ziff-Davis Publishing Company, William B. Ziff, Chairman of the Board (1946-1953), at 64 E. Lake St., Chicago 1, Ill. Entered as second class matter at Post Office, Chicago, Illinois, under the Act of March 3, 1879.
SUBSCRIPTION RATES: One year, U.S. and Possessions and Canada $4.00; Pan American Union Countries $4.50; all other foreign countries $5.00.
SUBSCRIPTION SERVICE: All correspondence concerning subscriptions should be addressed to Circulation Dept., 64 E. Lake St., Chicago 1, Ill. Please allow at least four weeks for change of address. Include your old address as well as new — enclosing if possible an address label from a recent issue of this magazine.
CONTRIBUTIONS: Contributors are advised to retain a copy of their manuscripts and illustrations. Contributions should be mailed to the New York Editorial Office and must also be accompanied by return postage. Contributions will be handled with reasonable care, but this magazine assumes no responsibility for their safety. Any copy accepted is subject to whatever adaptations and revisions are necessary to meet the requirements of this publication. Payment covers all author's, contributor's, and contestant's rights in and to the material accepted and will be made at our current rates upon acceptance. All photos and drawings will be considered as part of the material purchased.

FREE! Big, full-color reproduction of this painting! Write Plymouth Division, Chrysler Corp., Dept. CC, P.O. Box 1518, Detroit, Mich.

It's a rare car that rates a toast!

Fury owners . . . and all who have shared the great exhilaration of just handling a Fury . . . have an almost personal affection for this uncommonly spirited car.

Few automobiles in history have merited such regard. But Fury combines unusual, clean-limbed beauty with response and roadability very seldom found on wheels. A new Fury V-800 engine gives vigorous answer to your command—turning up a tremendous 290 horsepower, with 8-barrel carburetion for direct fuel flow to each cylinder.

Heavy-duty, racing-type torsion bars team with new ball-joint construction up front, and new asymmetrical rear springing, for level, no-sway cornering and no-dive, no-dip stops. New brakes virtually abolish fade; the shoe follows the drum as the drum expands under heat, maintaining full lining-to-drum contact.

And all this in a full-size car which still provides amazing car-and-driver intimacy. Try Fury. You'll be quite likely to propose a toast yourself!

For the man who really loves cars

• Fury by PLYMOUTH

very sincerely yours:

WE GOT to thinking while testing the Triumph TR3 that it's amazing what can be accomplished by really *using* available horsepower and torque in an automobile. Here was a car, a solid, safe and tractable vehicle with a mere (???) hundred horsepower at the flywheel that would stay with and even outperform some of the more highly touted American machinery *on the straight* and without taking refuge in the old wheeze that goes: "Yeah, but wait'll we get on a twisting road and *then* watch out." Most of our cars in this country have more rated horsepower than a Grand Prix car—more even than the W196 Mercedes. The reason is, of course, that the Triumph isn't burdened with a lot of power accessories that tax the useable horses the engine so willingly puts out. The power-to-weight ratio of the TR3 is approximately the same as that of all but our most powerful cars, yet it will stay with and in many cases ahead of them simply because it's allowed to use the power available to drive the car.

With the returns in, it appears the long belabored horsepower race is still with us, bigger and better than ever. Yet, with a few exceptions, the '57 cars are not much, if any, quicker or faster than were the '56 models. Why? Simply the be-advertised power-operated extras in which 10 quarts of oil and five thousand moving parts substitute for a chauffeur and footman. These use up gains as fast as they're made.

With virtually every U.S. Manufacturer upgrading his line, even unto the lowest priced of the "low priced" three, there is no such thing as a low-priced car left. With the high mortality rate among the independents in the last decade it would seem that there's room for a new line from each of the extant car makers. This wouldn't be a medium range car as is planned by one of the big three but strictly a low-man-on-the-totem-pole machine.

Such cars are already built by American manufacturers in England and Europe and are immensely popular. And where is all this popularity? Right here, friend, in the U.S. of A. Seems sort of funny. We beat the drum for big, fancy machinery here and sell it here. We build small, useable cars in Europe and then pay a premium price to haul them back where they sell like hot-cakes. It may be good for world economy but is it good for the guy who wants simple transportation? You tell *us*.

* * *

On page 32 you'll find a report on what is surely the furriest looking automobile to appear on these pages since the report on the Mercedes-Benz S-196, more popularly known as the 300SLR or Silver Screamer. This machine has a fascinating history grounded in the dry lakes and Bonneville and more recently in the Carrera PanAmericana. It's the Caballo II, built and owned by Ak Miller who will if all goes right drive it in the Mille Miglia, the first purely American entry to invade Europe in a Championship event since Briggs Cunningham fought the battle of LeMans. What is most remarkable about this is that Ak is a quiet guy with strictly limited funds who wants to take on the best in the world. He might just do it, too, if the past performance record means anything. Operating with little more than perseverance and a willingness to learn, Ak wound up running with the best Europe had to offer in what has been called the toughest race in the world. He didn't win but he came close enough to give the European racing world pause. In fact he's almost better known there than he is here. Whatever he does in the Mille Miglia, he and his car will be a sensation; if Caballo I caused a sensation, this one should start a riot. We wish there were more like A. O. Miller.

* * *

Speaking of the S-196 Mercedes, long-time readers will recall our world-wide beat a year ago. Next month we have a sequel. SCI's Jesse Alexander has wheedled a full set of pictures and drawings of the car from the factory. Included in this is the full dope on the M-B desmodromic valve gear as of the time the cars were retired. It was changed considerably as Tech Editor Karl Ludvigsen will point out next month in an SCI exclusive technical report on the double-four-barrel that swept two Championships in one year. Also coming up: a road test and track report on the newest 200-S Maserati scheduled to make its debut at Sebring. Don't miss either of these.—*john christy*

letters

a cyclist speaks

Dear Editor:

As a motorcyclist I would like to express my thanks for the fine coverage given the latest record speed runs at Bonneville. When a magazine like SCI so fully covers the motorcycle activities there, it shows there is a common bond that unites the sports car fan and the motorcyclist in their love of safe, practical speed.

As many cyclists go on to own sports cars and many car owners keep a motorcycle around, I feel that there should be more of this common understanding and cooperation between the two groups.

Sincerely,
Burton Luvaas
Lewiston, Idaho

Speaking personally, I haven't got the guts to ride anything on two wheels that's much bigger than a Lambretta. But any motor sport activity that makes as hefty a mark as the NSU and Texas Triumph runs is worthy of coverage any time.—Ed.

films for fans

Gentlemen:

Can you please tell me where we could rent 16 mm. films, with sound, of recent sports car races? We'd like to show these at a meeting of the SCCA.

Your sincerely,
Adah H. Howe
Gouverneur, New York

Films of recent sports car and Grand Prix racing are available free of charge from Graham F. Birkett, c/o J. E. Anderson, 610 Fifth Ave., N.Y.C. and the American Oil Co., 555 Fifth Ave., N.Y.C. Shell Oil and Socony-Mobil also distribute some good films. Also try British Petroleum, General Petroleum and Jaguar Cars, Ltd. —Ed.

one and only . . . ??

Dear Sir:

In Merwin Dembling's article, "The Jinx On The Front Wheel Drive" (Nov. '56), there appears an interesting statement as follows: ". . . America's one and only front drive effort: the Cord." I may be one of the younger and greener—but how does Mr. Dembling explain the following front drive efforts?

The Tractobile (1901), The Selden (1903-1912), The Halsey (1906-1907), The Christie (1908), The Homer Laughlin (1916), The Ruxton (1929) and The Gardner (1930). There *were* others, too. And by the way, the Cord was first built in 1929.

Sincerely,
Walter A. Seymour,
St. Joseph, Michigan

We ourselves questioned the uniqueness of

(Continued on page 8)

(Continued from page 7)

the Cord as a front drive effort, but let the statement stand since the story was concerned with production cars, not one-of-a-kind items, limited versions or pure race cars such as the Christie.—Ed.

answer

Dear Editor:

Perhaps your caustic critic, Peter Lewis, ("Letters" Feb. '57) is *really* more interested in tea and crumpets, car coats and string gloves than in fast hot rods or "thoroughbred" sports cars!

Sincerely,
Lawrence R. Hagin
San Leandro, California

Could be.—Ed.

let's be consistent

Dear Editor:

Just finished your interesting article on Alfa Romeo Veloce Spyder (Dec. '56) and frankly, I'm confused on a couple of points, to wit:

Brakes: In an earlier Giulietta write-up you stated that these cars had more brake area than a MB 300 SL—and we all know the 300 SL is no slouch of a car. Yet in the December article on the Veloce you state, ". . . it seems they have difficulty in finishing a race with any binders left to speak of." This simply does not figure.

Handling: Various articles in different magazines, as well as in yours, give the impression that the Giulietta (and presumably the Veloce also) is just about tops in handling, roadability, and cornering. Yet you quote an English mechanic who watched the '56 Mille Miglia as stating, "They 'ad 27 of 'em 'anging about in the trees between Brescia and Rome." Now I also watched these cars in the '56 Mille Miglia and there were gobs of them in the event as might be expected for Italy. How about changing the number of Alfas ". . . 'anging about in the trees" to a percentage figure. This would be more reasonable since 27 cars out of a veritable horde of them might actually be a very small number. One more point—why is there a confliction of reports? Can't testers get together and use something other than personal intuition and hearsay in deciding whether a car has adequate brakes or not, and whether it can be counted on to handle and corner properly?

P.S. Thanks for a *very* much improved magazine.

Very truly yours,
John A. Moody,
Wiscasset, Maine

You have made a point, sir. The percentage figures could be quite low. The brake problem has proven to be a rare one at this juncture a difficult one to analyze. It can probably be pegged to improper linings, i.e., touring rather than racing shoes. The lining area is such that with proper preparation the brakes should last forever About the "confliction of reports" on the brake situation—at the time our first test was made, we didn't have the brake test procedure which we now use. Furthermore, it is difficult to simulate racing conditions in a touring road test, as you must well know.—Ed.

» *Jim Whipple* — CAR LIFE

"Ten Years Ahead of its Time"

"Your first look at the CITROEN DS 19 tells you that it's different... the sloping nose, underslung air intake, long low body and narrow pillars, the rear turn indicator lights streamlined into the roof... all these things give the DS 19 a marked resemblance to the sketches of dream cars... but nothing about this amazing car prepares you for your first drive."

» *Pete Molson* — MOTOR TREND

"Left Incoherently Babbling in Wonderment."

"Hunt up the worst road available... one with big bumps, dips, as we did, a one lane dirt track rutted by mountain storms and totally unmaintained... and you can hurl CITROEN over it with only occasional light thumps from the underpinnings. Three consecutive carfulls of our own passengers were left incoherently babbling in wonderment. So what is there to say? It has to be experienced."

» *Ben West* — SPORTS CARS ILLUSTRATED

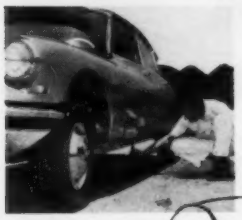
"A Riding Comfort and Safety that must be Experienced to be Comprehended."

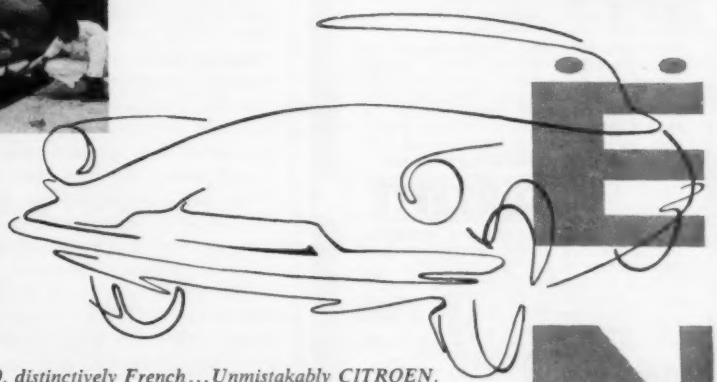
"Suspension characteristics are certainly the most outstanding encountered... There is French legend that should a CITROEN be accidentally driven off a mountain bend, into thin air, the driver needs only sufficient power at the front wheels to bring him safely back to the road. After five days of testing the DS 19, this tale does not appear too 'far-fetched'."

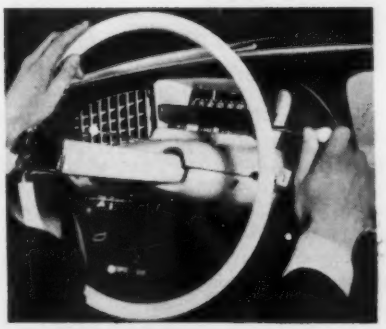
» ROAD TEST REPORTS

from the EXPERTS on the **DS-19**

the new **CITROËN**







FREE! Send For Complete ROAD TEST Reports!

The DS-19, distinctively French... Unmistakably CITROEN, combines chic Parisienne elegance with the road-hugging power of a Monte Carlo Winner. See the DS-19 in the Citroen Showrooms today, where the most advanced expression of automotive design awaits you!

FOR CITROEN DEALER NEAREST YOU, WRITE THE DIRECT FACTORY BRANCH:

CITROËN CARS CORPORATION

300 PARK AVENUE, NEW YORK, N. Y., ELDORADO 5-2872
8423 WILSHIRE BLVD., BEVERLY HILLS, CALIFORNIA, OLIVE 3-4745

•

THE CITROEN DS 19 IS THE ONLY CAR, COMBINING AS STANDARD EQUIPMENT ALL THESE EXCLUSIVE FEATURES: FRONT-WHEEL DRIVE—MONOSHELL BODY • NEW DS 19 OHV ENGINE WITH DUAL THROAT CARBURETOR • POWER DISC-BRAKES • INDEPENDENT FRONT AND REAR BRAKES • CENTRAL HYDRAULIC SYSTEM WITH AUTOMATIC CLUTCH AND AUTOMATIC GEAR-SHIFT • CITRO-SAFE® "NO SPOKE" STEERING WHEEL • SAFETY DASHBOARD • EXCLUSIVE CENTRAL FIXATION OF THE WHEELS • LOWEST CENTER OF GRAVITY • UNIQUE CITMATIC® AIR-OIL SUSPENSION... THE ONLY SUSPENSION THAT ACTUALLY FLOATS YOU ON AIR OVER THE ROAD!

CITROËN

TECHNOTES

By KARL LUDVIGSEN

XKSS AND SSR

Is there any truth to the recent rumors about a Corvette "Spyder" for Sebring? Also, what's the story on the new XKSS Jag for American Production racing? It all sounds pretty hairy!

Ben Oxnard
Denver, Colorado

Let's deal with the Jaguar first, since it's a clear-cut issue. It's the latest move on the part of a factory to checkmate the Production Regulations of the SCCA, and it makes the latter look foolish. It's a production D-Type, with stressed center section beefed up to compensate for the removal of the brace between seats. Horsepower is up to 262, and added goodies are bumpers, curved windshield and wipers, side curtains, top, trimmed-up lights and (yes, really) a luggage rack. The same trim can be obtained for the C-Type. As we write, price is tentative at $6000 (if you can really wheel it), and its status as a Production Car here is still dubious. Publicity is all very well, chaps, but this is a far cry from the 120M!

Much more significant to us are the developments at Chevy, which are still under

full wraps to the press, unfortunately. SCI isn't alone in wanting to boost such an effort as much as possible, since it's potentially one of the best yet. Trouble is, GM still isn't sure whether they want it or not, and are desperately afraid of failure. We think they deserve kudos for the attempt alone. Though their leadership is shaky and their knowledge of racing slim, they've still begun to assemble some potent machinery. The following is the best dope we've been able to get:

The small-tube frame is very similar to that in the 300 SL, and weighs 180 pounds. Front suspension is by conventional short and long wishbones, with coils, the arms being fabricated of special stampings. Saginaw steering gear is used, with more than a few U-joints in the column. At the rear is a modified Halibrand quick-change center section, driving two U-jointed half shafts. Right behind this, leaving room for gear swapping, curves a deDion tube. It's located by a single trailing radius rod at each side, above the hub, and by two trailing rods below the tube, triangulated to give lateral bracing. Roll center is thus low; we believe coils are used here too. All the rod ends are ball-socket-jointed.

Wheelbase is 92 inches, and the tread may be either 50½ inches or 51½. Brakes aren't definite yet either, but for now they use highly modified Chrysler Center-Plane mechanisms, those at the rear being mounted inboard next to the center section. Drums, still experimental, are aluminum with molybdenum hot-sprayed onto the inner working surfaces. In tests these have bell-mouthed severely, and steel straps may be used to strengthen them.

Light alloys are being used wherever possible, and there just MAY be an aluminum block for the Chevrolet V-8. In any case it will have a cast magnesium sump and aluminum heads, with the valves seating directly on the head without inserts. The four speed Corvette gearbox, in unit with the engine, will also have an alloy case.

Final engine tune isn't set, but as an example the 283 inch engine in the Daytona-bound SR2 Corvette was good for 310 horses, exclusive of later gains from an eight-pipe tuned exhaust. A special injection rig being developed uses the Rochester-Chevrolet jet assemblies, with the valuable addition of a cris-crossed group of fabricated ram tubes. The plenum chamber for the four tubes of one bank is above the rocker cover of the other side, and each chamber has its own air metering valve. This is between the center two tubes of each plenum cylinder, attempts to place the valve at the front end having failed due to unequal distribution.

Styling is to bear a family resemblance to the Corvette, but will be much more compact with Maseratish overtones. Like Mercedes, Chevrolet will probably sacrifice streamlining for identification.

At this date there's a running suspension test bed, with reworked Corvette chassis, and the prototype frame has gone through all stress testing and revision. They hope, with an all-out effort, to have a team at Sebring, and they may, but it won't be a seasoned group. We hope that they'll continue to campaign the cars and back up Al Miller in Italy, while building a tight organization. Chevy could be near the top by this time next year, if they'd stop hiding on the GM Proving Ground.

THUNDERING BIRD

Kindly furnish me with any dope that you may have collected for improving the suspension of the 1956 T-Bird. I would also like to know the names of manufacturers other than Hilborn who offer fuel injection kits for the T-Bird.

Richard A. Saltz
LaCrosse, Wisconsin

You're faced with a pretty colossal task, in more ways than one. No matter what you do, the basic large size of the Bird, with regard to both weight and overhang, will be a big handicap. Also, unlike Chevrolet, the Thunderbird Division doesn't cater in any way to racing or other non-personal-car activities. You have to cook the equipment up yourself.

The individual front suspension units should be stiffened up, both with heavier

(Continued on page 62)

NEW 1957 TRIUMPH TR-3

Picture snapped as TR-3 sped at 110 mph over Monza Racetrack, Italy, in Alpine Rally.

Now with exclusive disc brakes*

*(standard equipment)

New high port head • 110 miles per hour • 100 horsepower • 0-50 mph in 8 seconds • Up to 35 miles per gallon • Combines true sports car performance with family convenience.

Try the new 1957 TRIUMPH— a million dollars worth of fun for only $2,625

FREE—write for descriptive brochure and list of dealers.

At U. S. ports of entry. Prices Slightly Higher on West Coast.

Standard-Triumph Motor Company, Inc., 122 E. 42nd Street, New York 17, N. Y.

LISTED BELOW ARE TRIUMPH DEALERS IN WESTERN U.S.A., FOR FULL LIST, INCLUDING EASTERN DEALERS, WRITE STANDARD TRIUMPH MOTOR CO.

SALES-SERVICE-PARTS

At Authorized TRIUMPH DEALERS Everywhere

SOUTHERN CALIFORNIA

NICK PASTOR — South Gate
WILLIAMSON MOTORS — Los Angeles
LARRY REED, INC. — Los Angeles
NOLL AUTO COMPANY — Los Angeles
SAVIN & SONS — Los Angeles
MIRACLE MOTORS — Los Angeles
WILSHIRE MOTORS — Santa Monica
"SIPPI" AUTO SALES — Hermosa Beach
HOLIDAY MOTORS, INC.
Sherman Oaks and Studio City
BARNEY MOTOR SALES, INC. — Burbank
REHWALD & DANYLUK, INC. — Glendale
ENCINO CAR CENTER-NEW, INC. — Encino
SUBURBAN MOTORS — Wilmington
KOOP FOREIGN CARS — Alhambra
NOLL AUTO COMPANY — Pasadena
CONTINENTAL CAR IMPORTS — Culver City
BILL ELSWORTH IMPORTED CARS
Cathedral City
HARRIS MOTOR COMPANY — Ventura
IMPORTED SALES & SERVICE — San Luis Obispo
ROEMER & RUBEL — Santa Maria
BRITISH CAR SALES, INC. — Bakersfield
H. W. HUNTER COMPANY — Lancaster
COVINA IMPORTED CARS — Covina
FRANK WHITE SALES & SERVICE — Pomona
ED. DEMPSEY — San Bernardino
DAVE THOMAS MOTORS — Long Beach
BRITISH MOTOR SALES — San Diego
WESTCOTT MOTORS — National City
JOE WHITE MOTORS — La Mesa
SUNSET MOTOR IMPORTS — La Jolla
JIM WINTON — Costa Mesa
RENFREE MOTORS — Fullerton

NORTHERN CALIFORNIA

HYDE MOTORS — Mill Valley and San Rafael
TV MOTORS — San Francisco
CONTINENTAL CAR CO. — San Francisco
C. J. MOTORS — Berkeley
DICK DYE IMPORTED CARS — Oakland
JIM MASSA SPORTS CARS
Oakland and Lafayette
CAMBRIDGE MOTORS — Sacramento
CONTINENTAL CARS — Santa Cruz
HARON MOTOR SALES, INC. — Fresno
ALLINGER MOTORS — Palo Alto
VALLEY MOTORS — Visalia
L. NUNES MOTORS, INC. — Hayward
TRIUMPH MOTOR SALES — San Carlos
ED. FAWCETT, IMPORTED CARS — San Jose
K & M MOTORS — Santa Rosa
MOSCHETTI BROS. — Ukiah
CROWN MOTORS — Stockton
WESTERN AUTO IMPORT CORP. — San Leandro
BARNARD & JOHNSON — Redding
FRANK DEARING MOTORS, INC. — Eureka
KEARBY SPORTS CARS — Marysville
MONTEREY BAY MOTORS — Monterey
VAN HORN MOTORS — Walnut Creek
McAULEY MOTORS — Merced

TEXAS

SPORTS CARS, INC. — Houston
INTERNATIONAL MOTOR CAR CO.
San Antonio
CLARENCE TALLEY AUTOMOBILE CO. — Dallas
CONTINENTAL IMPORTS — Abilene
INMON'S MOTOR SALES — Waco
O'NEAL'S IMPORTED AUTOMOBILES
Corpus Christi
EASTERLING & VAN TYNE — Harlingen
MICKEY PHELAN MOTORS, INC. — Beaumont
EUROPEAN MOTOR IMPORT CO., INC.
El Paso
INTERNATIONAL MOTORS — Fort Worth
AMARILLO IMPORTED CAR CO. — Amarillo

OKLAHOMA

TULSA SPORT CARS, INC. — Tulsa

OREGON

ARMSTRONG & GOETZ MOTORS — Portland
BRITISH MOTORS — Beaverton
SHEPPARD MOTORS — Eugene
PAUL BUNYAN COMPANY — La Grande
WHITE'S — Medford

WASHINGTON

FOREIGN MOTORS, INC. — Vancouver
BRITISH CAR SALES OF SEATTLE, INC.
Seattle
GALLAGHER MOTORS, INC. — Seattle
FOREIGN CAR SALES — Tacoma
JAREMKO MOTORS - BRITISH CAR CENTER
Spokane
DAWSON MOTOR COMPANY — Walla Walla
"C" HURLBUT MOTORS — Bellingham

ARIZONA

SPORTS CAR CENTER — Phoenix
EMPIRE MOTORS — Tucson

UTAH

DUNN AUTO COMPANY — Salt Lake City

IDAHO

BLAIR HAMMON GARAGE — Idaho Falls

NEW MEXICO

S-P MOTORS, INC. — Albuquerque
ROSWELL IMPORTED CARS — Roswell

COLORADO

SPORTS CARS, INC. — Denver
FOREIGN MOTORS, LTD. — Colorado Springs

NEBRASKA

LOYAL'S BRITISH MOTORS — Omaha

KANSAS

THE SHIDLER MOTOR COMPANY — Wichita

IOWA

FOREIGN CARS, INC. — Davenport

MISSOURI

GOANS MOTOR COMPANY — Kansas City
ED. DE BRECHT MOTOR COMPANY — St. Louis

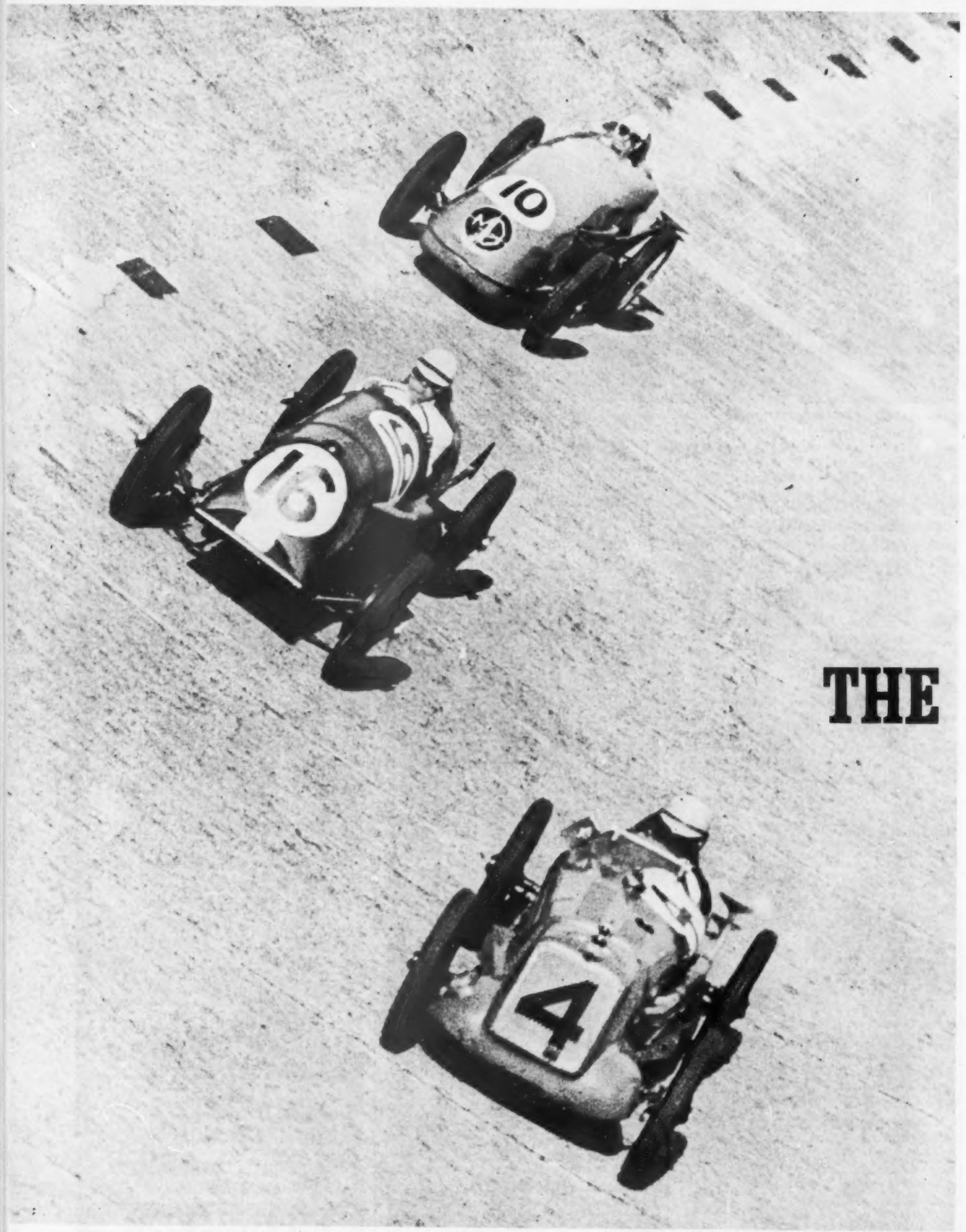
WYOMING

FAUGHT MOTORS — Laramie
AUTO ASSOCIATES — Cheyenne
COLISEUM MOTOR CO. — Casper

WESTERN DISTRIBUTOR

CAL SALES, INC.

1957 W. 144th STREET GARDENA, CALIFORNIA



THE

High on the Brooklands banking, Dixon in Red Mongrel, a full race 1100cc Riley, is crowded between MG and Austin.

Followed by a trail of smashed taverns, marathon binges, and an incredible series of bone breaking crashes, the fabulous Freddie earned the right to be called . . .

Dixon with one of his Tourist Trophy winning 1½ liter Rileys. He scored two victories, in 1935 and '36, in the T.T., one of Britain's leading road races.

INDESTRUCTIBLE MR. DIXON

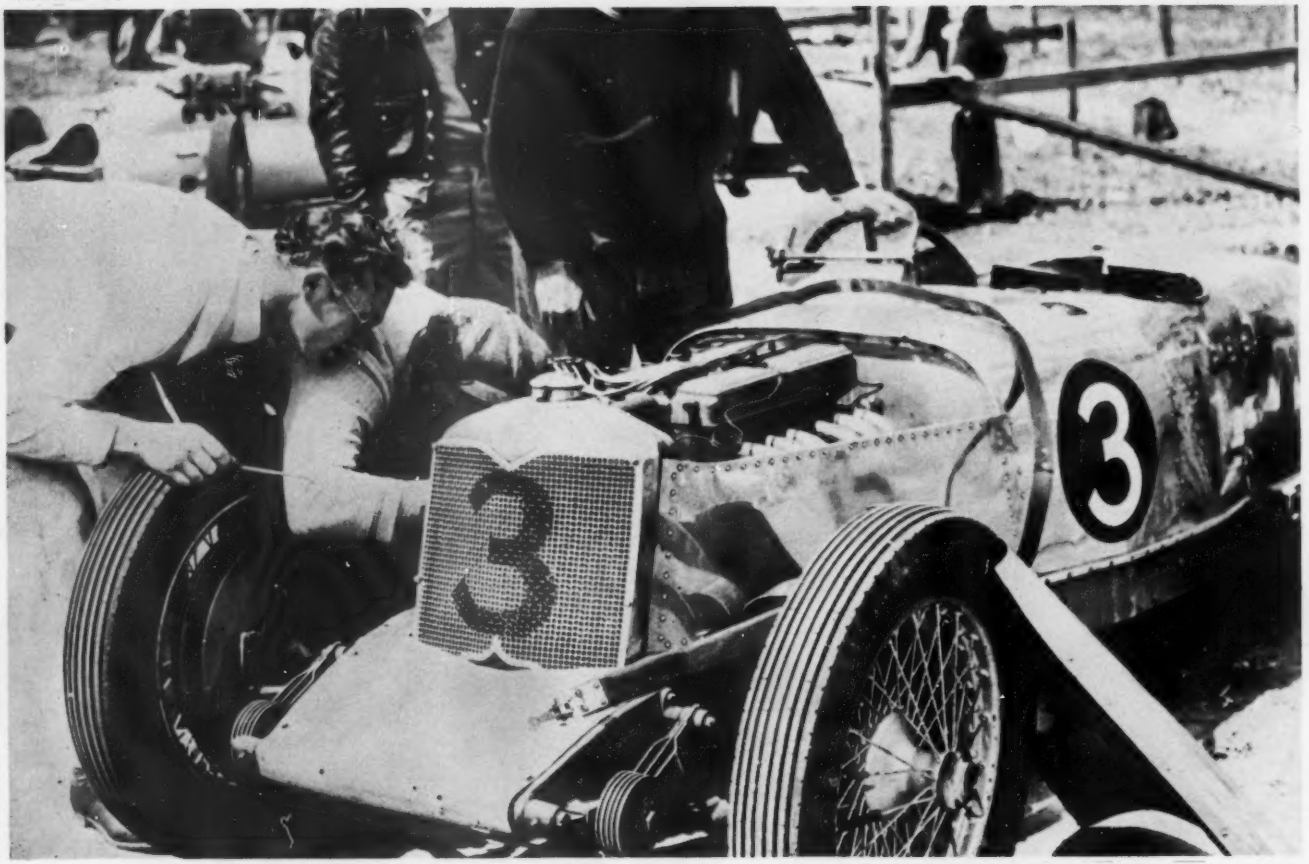
By *DENNIS MAY*

IF newspapers circulate in the hereafter, the meaty, scar-lined face of Fred W. Dixon must have creased into a grin as he conned his obituary notices on the morning of November 5th last. For forty-six years, divided about equally between the car and motorcycle fields, the deeds of this prankish genius had been supplying material for a sky-scraper edifice of legend and anecdote. And now, as the news went out that he had extended a noonday nap into eternity on November 4th, automotive writers in Britain and the Commonwealth vied in embroidering the tidings with believe-it-or-nots.

The success statistics alone made an impressive tablet. Dixon was the only man ever to win all three Tourist Trophies—car, solo motorcycle, motorcycle with sidecar. He was the only driver to cop Britain's premier car classics of road and track, the T.T. and the Brooklands 500, in one and the same season. His overall returns in the Royal Automobile Club's T.T. and the 500, two victories apiece, were never surpassed while he held a license to race. His second 500 win, in 1936, was turned at a substantially higher speed than the same year's Indianapolis 500, and had only once been topped (by 0.12 mph) in the Hoosier series. His 2 liter Riley, reworked to the point where it was more Dixon than Riley, was by far the smallest displacement unblown car to score a 130 mph lap speed badge at Brooklands. Fred was first to turn Brooklands at 100 miles per hour on a motorcycle sidecar outfit, years ahead of the competition. Although his claim was disallowed on a technicality, he was, *de facto*, at one time the fastest motorcycle rider in the world. Later, a machine he had built and mothered gained another "meteorcyclist" the official world speed title.

But it would have taken more than mere success to put Dixon on the scaffold-high pedestal that his fans fabricated for him. They loved him for his defiance of every rule and convention in the book—social, legal and technical; his generosity to the younger, less experienced and worse heeled drivers who came to him for help and advice; his refusal to quit speedwork when, well on into middle age, his career was interrupted by a succession of really bad crashes; his unpredictable switches of mood, alternating between a Stakhanovite devotion to labor on the one hand and bouts of crazy hooliganism on the other.

Stuck with a tough technical problem, he would work next to nonstop for four or five days at a stretch, catching a catnap on the workshop floor at intervals between twenty and thirty hours, eating practically nothing and never noticing what he did eat, even foregoing all alcoholic comforts in favor of mugs of sweet tea. Then, when the knot was



This 2 liter track Riley, hand hewn by Dixon, had a duralumin body, which was bolted to frame, giving stiffening effect.

finally unravelled, he'd bust out on a marathon jag, drinking enough to pickle an octopus, calling on everyone within earshot to charge their chalices at his expense and wreaking havoc with the decor and furnishings of all taverns on his erratic itinerary. The owners of these places seldom put up more than a token resistance, firstly because they knew a rogue elephant was about as amenable to reasoning and restraint as Fred when he was playing rough, secondly because it was established by international precedent that he always came back afterwards and paid for the damage he'd done—sometimes for a good deal more than he'd done. In race vicinities on the European continent, from Francorchamps clear down to Madrid, restaurant keepers and hoteliers shruggingly accepted Meester Deekson's prerogative to wreck and recompense.

Liberal as he was with his prize money and other professional earnings, Fred was no fool. Even after paying for his expensive fun, he usually managed to return home a richer man from his continental capers. One of the few exceptions to this was an occasion when the promoters of a Belgian motorcycle race augmented their prize checks with gifts of FN automatic pistols. Before Fred was through practicing marksmanship, the doors, windows and panelwork of his hotel and adjoining premises were looking holier than a collander.

It needed the sad event of November 4th last to disprove the stock *cliche* that Dixon was indestructable. Certainly in his lifetime he repeatedly lent weight to the fable, starting the very first time he raced at Brooklands, back in 1921. This track debut also sowed the seeds of his reputation for resource and improvisation. The race was a 500-miler for motorcycles—an experiment in endurance that was never repeated, owing to the proved inability of men and machines to endure it. (Only one rider per entry was permitted).

Fred's bike was a big 61 cu. in. Harley Davidson, lent by the British concessionaires for the Milwaukee make. By some mistake which was not uncovered until afterwards, the steering geometry had been rigged for sidecar work, whereas this was a batchelor party. During training, young Dixon consequently found it impossible to maintain contact between his fanny and the saddle. So, making friction his substitute for science, he scissored out a saddle-shaped sheet of sandpaper and glued it to the seat, abrasive side up. The dodge worked too, for awhile. Then, ninety miles or so after the start, he felt a painful sensation in his blunt end. The sandpaper had rubbed clean through his horsehide breeches and was eroding his backside at the rate of about a millimeter every two laps.

Thirty laps later, having in the meantime made a pit stop and dispensed with artificial aids to stability, Fred took a dive over the handlebars when the front tire left the rim at ninety. He rolled himself up into a ball in mid-air, looped a dozen ground-level loops on hitting the concrete, hobbled back to the Harley, kicked the bars and pegs straight, puttered to the pits on a bald front wheel, fitted a new tire and resumed the *kampf*. He eventually placed second in a massacred field. Dixon, incidentally, was the only man to contest 500s on both two and four wheels. He was also unique in opposing the once-is-enough decision taken by the organizers of the motorcycle grind. Personally, he said, he hadn't found it very arduous.

A debut in a different school—his first car race—culminated in a crash so dripping with drama that the eventual winner hardly got a toehold in the headlines. This was the 1932 Tourist Trophy, Britain's grandest *epreuve*, run over the old Ards circuit in Northern Ireland. Fred was forty years of age at the time and had quit motorcycle racing four years earlier. His car was an almost unrecognizable 1100 cc

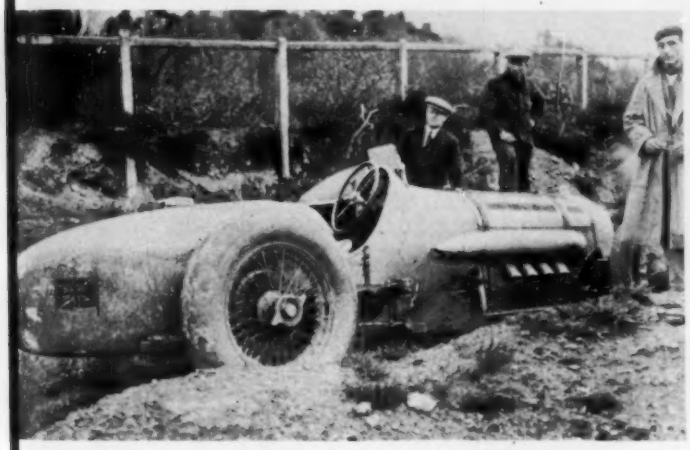
Riley that he had bought secondhand less than three months before the T.T. and completely reconstructed, with the sole exception of the engine-gearbox ensemble, in accordance with his own peculiar ideas. That these ideas were effective as well as peculiar was sensationally demonstrated when, first time out for practice, he not only only pulped the 1100 cc class record but also beat every 1½ liter car in the list. As befitted the U.K.'s premier road race, the field included official makers' entries from all the British plants with an investment in speed, Riley and MG among them.

So it was against this background that a middle-aged roughneck from the barbarous north-country, with a car that visibly proclaimed its bastard status, threw down the gage to the elite of British automobile racing--experienced professionals, rich playboys, titled seigneurs, et al.

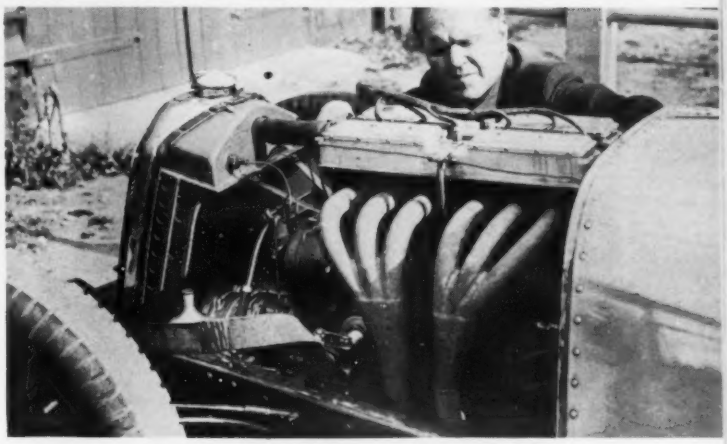
It didn't take long to see who was going to eat whose dust. Well before the first hour was up, Fred led the whole race. Two hours, three hours, and he still was out in front. Then, around the fourth hour, the blackboard operator in his pit made a *lapsus calami,* hanging out a signal that was a contradiction in numerals. Dixon, his nerves at snapping point from lack of sleep (he had worked to cure a last-minute engine fault throughout the previous night) did a double take. When it was too late he realized he was heading into a sharpish turn miles per hour too fast to make it.

Dixon went flying to restore his nerve after an almost fatal race mishap. This was first and last time he took to the air.

Fred in cockpit of 1200 hp Silver Bullet, LSR experimental. Standing is Cyril Paul who co-drove 1½ liter Riley at Le Mans in '34.



Aftermath of one of Dixon's few non-Riley ventures. While record breaking in the wet, Dixon spun Cobb's single-engine Napier Railton, Montlhery, France, off the road at 120 mph and finished in the rough.



Dixon, a mastermind on unblown engines, ran his 2 liter Riley with a supercharger for one brief period. Here it is in blown form, with SU dashpot just visible at base of radiator.

Pointing the Riley at what looked the least lethal piece of landscape, he went off the road at eighty, over-rode a shallow bank, tore a tree out of the ground and jumped a stream, ten feet above water. In midair, as a sharpshooting photographer was able to record, he had the presence of mind to switch off the ignition as an antifire precaution.

Landing forty-five feet after takeoff, the car incredibly stayed right side up, the driver's only injury being an enormous bruise on the broad fanny that, eleven years earlier, had survived its ordeal by sandpaper. His riding mechanic cut his face open on the dashboard.

Another installment of the "Dixon is indestructable" fairytale was was written in 1934 at Donington Park, England, scene of titanic Auto Union *vs.* Mercedes battles in the late 30s. Driving one of his full race 2 liter Rileys, he was descending a fast slope to the circuit's one tight hairpin when the back axle casing disintegrated, carrying away both rear brake cables and snapping the propshaft. This time, all sections of the landscape being equally lethal, he slammed head on into a tree stump, a foot and a half high and about the same in diameter, at 110. He returned to conciousness, with almost as many broken bones as whole ones and his already battered face purpled with fresh scars, ten days later.

That, he figured, would be enough for one season, and the surgeons nodded grave agreement. In fact, unless he could get his nerve back it might even be enough for one lifetime. *(Continued on page 50)*

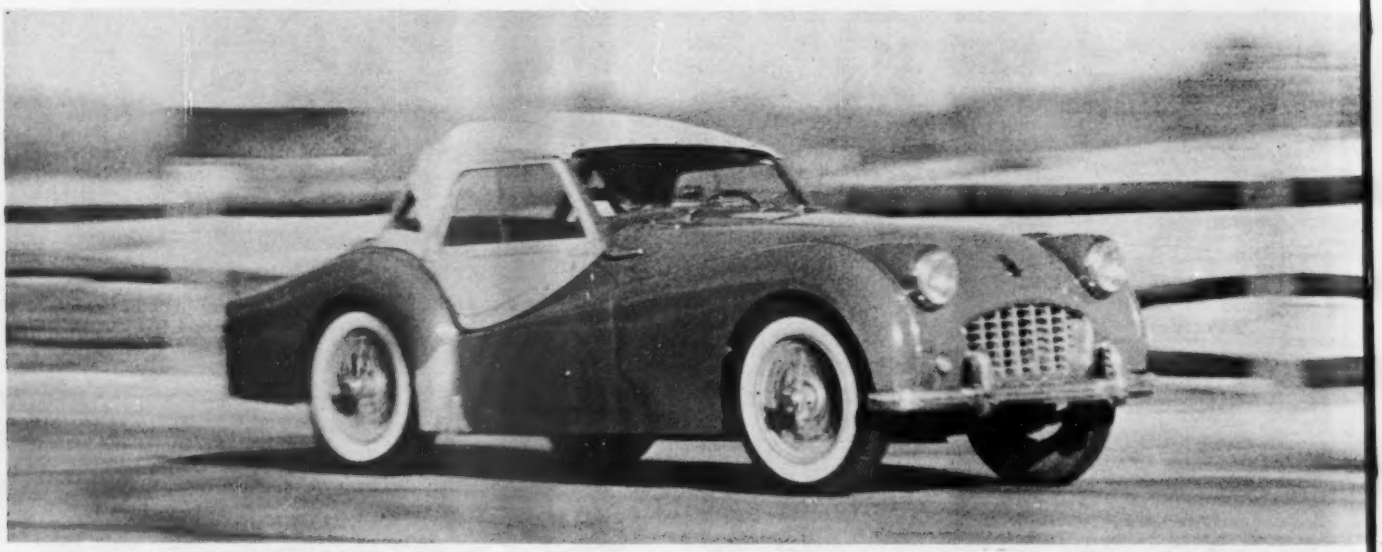
SPORTS CARS ILLUSTRATED

SCI

ROAD TEST:

DISC BRAKED

Photos by Albert Prokop Karl Ludvigsen



Moving at about 80 through a fast left bend, the Triumph exhibits a slight lean to the right and very good control. Top and curtains didn't drum or rattle excessively, only fault being a tendency to lift less than an inch above windows when at or near top speed.

THE ruggedest single step in our road tests is the ten-stop braking trial. From a dead stop or nearly so, the machine is run up through the gears at 75-80 percent maximum effort. At a genuine sixty per, the clutch goes out and the brakes come on – hard, but not hard enough to break traction. The observer notes the maximum decelerometer reading, and as the car rolls to a rest, first gear is snicked in and away we go again. Ten times in a row – with a fast car taking about as long as it does to read about it.

This may seem unfair, since a car with less punch gets more time for the brakes to cool between applications. We think it's fairer than allowing a standard cooling time, since faster iron will in practice make greater demands on its brakes, which should be tested harder in proportion. This means more to you, who just might buy one of these.

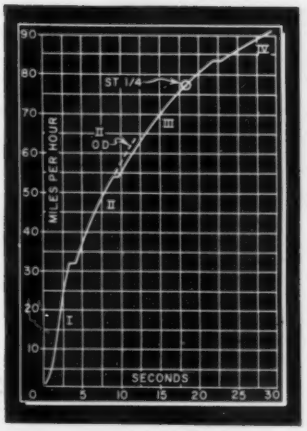
Production Triumph TR3's now have a braking system that sets them wholly apart from all other sports cars in their class, in this important respect. Usually the braking test is a chore, but this time we were really curious. First run was smooth – heavy pedal pressure but maximum stopping without a waver. Second was the same, like most other good cars. At the third we laughed – deceleration went *up* a point! It stayed up on the fourth stop, and went up yet again on the fifth.

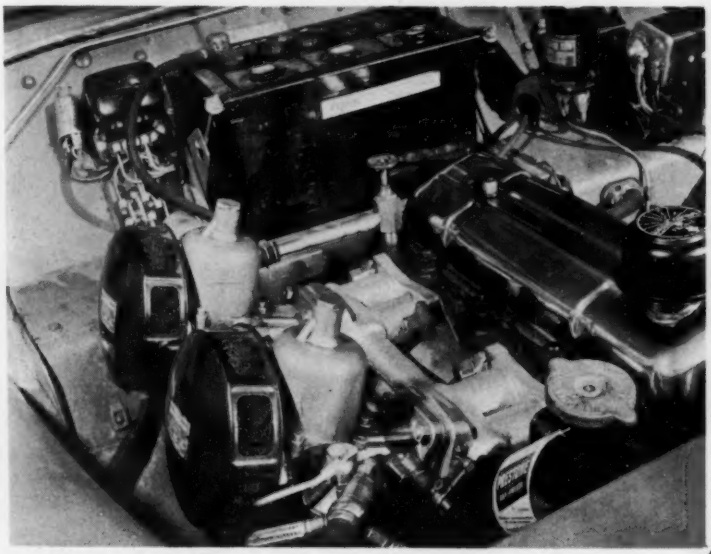
Still no swerve, still smooth, but the pedal was down a fraction. The sixth was lower, a driver factor, since the seventh was back up again. Each time we restarted now, in the frigid winter air, clouds of vapor billowed from the front wheel wells. They were hotter than any test brakes have ever been, but the ninth stop was as firm and fast as ever. Pedal feel was softening, and there were traces of swerve on the tenth halt, which was still among the best we've recorded. Discs were crackling hot, linings smelled to high heaven, but the darn TR3 stopped anyway.

Flashback – Le Mans, 1955: Ken Richardson wheeled a mixed lot of Triumphs up to the tech inspection before the 24-Hours. His own TR had Girling disc brakes at the front, and 11 by 2¼ inch Girling drums at the rear. The Dickson-Sanderson car had Dunlop discs all around, while Leslie Brooke herded a third car with standard Lockheed drums. Since they weren't after any out-and-out honors, this was extremely good experimental procedure, since Brooke's near-standard car acted as a control for evaluation of the two alternative braking systems.

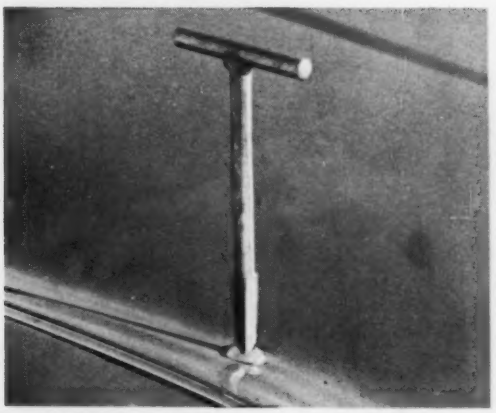
In the race, the Dunlop discs had a negligible margin over the 15th-place Girling disc-drums, both being miles ahead of the old rig. On performance there was little to choose, so the Girling combo was picked on the basis of cost. It was also easier to hook up a handbrake using the rear drums, which were cut back to 10 inch diameter.

TR3

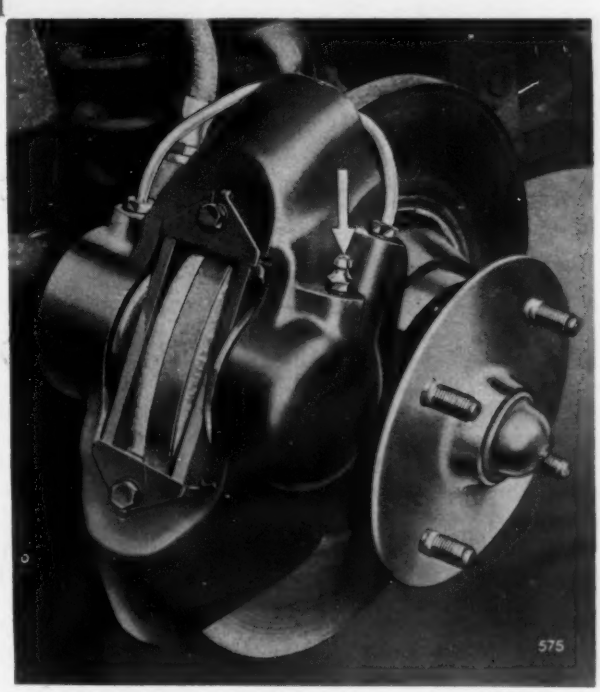




Modifications to intake ports don't show outside, big log-type manifold remaining the same. Battery is easy to reach, like junction boxes, water filler and heater valve.



If you buy a TR3, you'll become very familiar with this tool. It's here caught in the act of unlatching one of the two hood Dzus fasteners. Not very handy, but positive.



Arrow in this factory photo shows the single bleed fitting for twin spot cylinders. Removal of the two bolts and plates at the left allows linings to be pulled out by hand. Pads are at trailing side of disc.

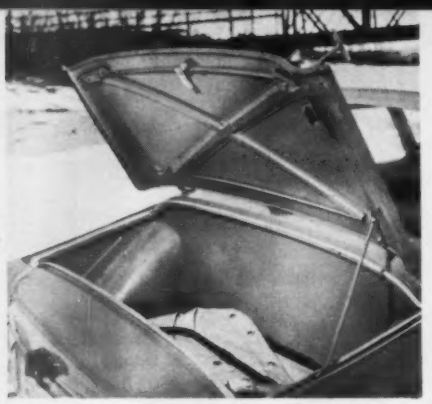
As disc brake users are woefully discovering, good performance at Le Mans, where the brakes go on *hard* two or three times per lap, doesn't always mean impeccable braking on short courses. Discs do dissipate heat well, and have plenty of time to do so at the French course. They have little mass to store heat up, though, if two corners in quick succession keep them from cooling off. SCI's braking test is an extreme of this, and the refusal to fade that we encountered can be laid to the tough Ferodo DS1 linings, plus the fact that discs expand into and not away from the lining surfaces. Cooling had little to do with it.

Detractors of spot-type disc brakes have assured us that they'd get wet and dirty and cease to work at the slightest provocation. We wondered very much about this, and were overjoyed when we got snow, rain and slush for the test. Conclusion: The older two-leading-shoe drum setups were very tricky when wet; they'd either lock or not come on at all, or a combination of the two. With the discs, braking force remained perfectly proportional to pedal pressure.

Weather just didn't enter into it. If the discs did get really drenched, the first tap on the pedal would wipe them clean. Much credit for this must go to the leading and trailing edges of the lining segments, which are cut along radii of the disc circle. So don't let that worry you!

Eleven inches in diameter, the cast iron discs have a braking path 2¼ inches wide on each side. A husky casting

Lines are clean, square from rear, and good vision can be appreciated. Spare and tools are behind plate between twin rear "bumpers." Fuel filler is central.



Trunk access depends on that key too, with a central lock for added safety. Compartment is roomy, carpeted, here holds crank and tonneau cover (extra).

Big grab handle is handy for getting in and out, but deadly from safety angle. Lighter and ashtray are afterthoughts, other controls being well placed.

Taking a set for a tight right-hander, the TR3 cocks over but keeps all wheels square on the concrete. It will slide controllably under these conditions, and is about to here. The Dodge van in the distance was a spectator – no legal motives!

embraces each one, and carries two chrome-plated pistons which actuate two segmental lining pads. The steel plates that form the backing for these pads have small ears which are held in place by triangular retainers. Removal of two bolts allows the segments to be pulled, and they can be inspected for wear through the access space. After each application the piston seals withdraw the pads to give .003 inch clearance. Car price has been held to that of the previous model by this very simple design, and Girling makes only the modest claim that these are "four times as effective" as drum brakes of equivalent diameter.

Brake and clutch pedals are suspended type (the clutch being hydraulically controlled), being hung from two cylinders high on the firewall. In older versions these had two separate fluid reservoirs, but service has now been simplified by fitting one can to feed both cylinders. This was also required by the relocation of the windshield wiper motor, which is now on the left-hand side. It's single-speed, self-parking, and its new design has made it almost inaudible, which was a pleasant surprise.

All this attention to brakes must mean that the TR3 can go as well as stop. It was fast to start with, and each year has seen a little more under the hood. Again Le Mans has helped out, the 1955 cars having specially shaped and inclined intake ports to suit the bigger carbs better. This is now production specification, and it seems to have smoothed out bottom end performance a lot. In contrast with earlier TR3's, the '57 engine will lug cleanly from low speeds and can be driven away quickly after a cold start (not that this is a good idea in any car).

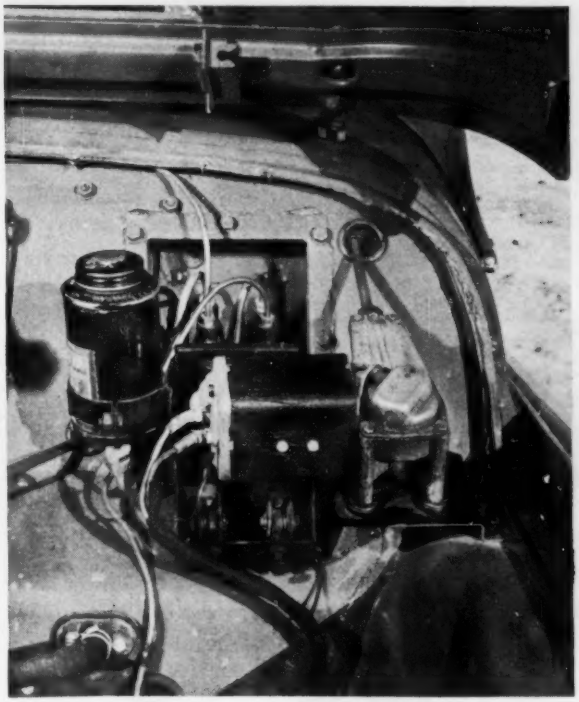
Though the throttle linkage isn't rock solid, the engine itself is very responsive and has a wide range of power. There's a typical pushrod buzz, and some vibration periods, but exhaust is an unobtrusive hum. You won't antagonize the law with this Triumph. It has plenty of punch up to and including an easy 5500 revs, and never overheated or misbehaved.

The clutch can handle this power under all but the most extreme usage. We got very slight slip near the end of the performance trials, which will be worth it to many to get such smoothness in town use. Pedal throw is long and vague, but engagement is consistent and chatter-free.

As always, the TR3 gearbox allows full use to be made of the engine's good power range. Shift pattern is very compact with effortlessly short throws, and a stiff, stubby gear lever does the job. It's placed right where you want it, working through a conventional pattern with the right-hand reverse reached by lifting the lever. With good, though beatable, synchromesh, moderate gear noise and a good selection of ratios, the insides of the box are well planned too.

This isn't all in this department, since the Laycock overdrive tosses in three more ratios (it doesn't work on low – that would be pretty useless, and would put too much torque through the overdrive). Still very handy on the left side of the dash, the OD switch now operates more logically, in our opinion: Up for OD, down for direct. Engagement of the extra ratios is instant, with no throttle interlinking. There were no slip problems. Technically, third OD is the only superfluous gear in the lot, and even it has its purposes when used in sequence with third direct. Second and second OD are a good pair for town use, giving

All in a bunch on the left hand side are the clutch and brake cylinders and wiper motor. The latter is excellent, being potent and silent. New single fluid reservoir is clamped at left.



you an available top of 65 mph. Overdrive top, of course is pure luxury, allowing you to cruise virtually flat out. As usual, since it's way overgeared, top speed in OD is slightly less than that in direct. With the optional 4.1 to 1 rear-end gearing this could change for the better.

Like the gear controls, the rest of the knobs and levers are easy to get at and positive in action. Out of the driver's way on the other side of the tunnel, the lever-type hand brake is still easy to reach and very effective. Brake and clutch pedals are firm and distinct, though their leftward placing can cause confusion at the very first. The left foot rests naturally on the big dimmer switch. A minor point is that the early floor carpeting has been replaced by rubber mats, which are less likely to bunch up and snag the driver's heels.

Electrical controls are grouped handily at the center of the dash, sharing space with the four secondary instruments. These, like the big tach and speedometer, are well marked in white on black faces, and well lit (at one intensity) for night work. There's no separate interior light, but some scattered light under the dash will help out. The speed on our car was unusually accurate, and has an adjustable trip mile-counter.

Thanks to the use of side curtains, the TR3 has both a big, lockable glove compartment and handy map pockets in the doors. There's also a lot of space just behind the seats, where the optional kiddy-type bench can be installed. Here also the trim has been simplified. A smooth, board finish is used instead of carpeting as in the TR2, giving a much neater appearance. Interior trim in general is rugged and livable. *(Continued on page 58)*

TRIUMPH TR 3 (DISC BRAKED)

TOP SPEED:	4th	4th OD
Two-way average	104.1	102.1
Fastest one-way run	105.9	104.7

ACCELERATION:

From zero to	Seconds
30 mph	3.4
40 mph	5.7
50 mph	7.9
60 mph (1, 2, 3)	11.5
60 mph (1, 2, 2OD)	10.9
70 mph	14.9
80 mph	20.6
90 mph	28.4
Standing ¼ mile	18.0
Speed at end of quarter	76.5 mph

SPEED RANGES IN GEARS:

I	0 to 32 mph
II	4 to 54 mph
II OD	8 to 65 mph
III	10 to 83 mph
III OD	15 to 102 mph
IV	20 to top
IV OD	24 to top

SPEEDOMETER CORRECTION:

Indicated	Actual
30	32
40	41
50	50
60	59
70	69
80	79
90	89
100	100

FUEL CONSUMPTION:

Hard driving	16.3 mpg
Average driving (under 60 mph)	25.5 mpg

BRAKING EFFICIENCY:

(10 successive emergency stops from 60 mph, just short of locking wheels)

1st stop	70
2nd stop	70
3rd stop	71
4th stop	71
5th stop	72
6th stop	69
7th stop	71
8th stop	71
9th stop	71
10th stop	69

SPECIFICATIONS

POWER UNIT:

Type	Four cylinder, in-line
Valve arrangement	Overhead, in-line
Bore & Stroke (Engl. & Met.)	3.27 x 3.62 ins. (83 x 92 mm)
Stroke/Bore ratio	1.11/1
Displacement (Engl. & Met.)	121.5 cu. ins. (1991 cc)
Compression ratio	8.5/1
Carburetion by	2 SU H.6 sidedraft
Max. bhp @ rpm	100 @ 5000
Max. torque, lb.-ft., @ rpm	118 @ 3000
Idle speed	850 rpm

DRIVE TRAIN:

Transmission ratios

Rev	4.27
I	3.38
II	2.00
III	1.32
IV	1.00
Final drive ratio (test car)	3.7 (with 0.82 overdrive)
Other available final drive ratios	4.1
Axle torque taken by	Rear leaf springs

CHASSIS:

Wheelbase	88 ins.
Front tread	45 ins.
Rear tread	45.5 ins.
Suspension, front	Coil and unequal-length wishbone
Suspension, rear	Solid axle, leaf springs, underslung frame
Shock absorbers	Telescopic front; piston-type rear
Steering type	Cam and lever
Steering wheel turns L to L	2
Turning diameter	33 ft.
Brake type	Girling hydraulic, 11 in. discs front
Brake lining area	Rear: 87 sq. ins. Front: (rubbed area) 248 sq. ins.
Wheel studs, circle diameter	Rudge splined hubs
Tire size	5.50 x 15

GENERAL:

Length	149 ins.
Width	55½ ins.
Height	50 ins.
Weight (test car)	2200 lbs.
Weight distribution, F/R	52.75/47.25
Weight distribution, F/R, with driver	50.6/49.4
Fuel capacity, U.S. gallons	14.4

RATING FACTORS:

Bhp per cu. in.	0.823
Bhp per sq. in. piston area	2.99
Torque per cu. in.	0.976
Pounds per bhp (test car)	22.0
Piston speed @ 60 mph	1800 fpm. (OD: 1470 fpm.)
Piston speed @ max. bhp	3010 fpm.
Brake lining area per ton (test car)	Using front rubbed area—304 sq. ins.

Although engines were kept stock, care was taken to replace and balance all dubious parts.

PREPARING FOR SEBRING

By DAVID H. ASH

THE entry blanks for Sebring are out, and it's getting to be time to think about a car for this year. I've run in every Sebring since the first one, and I'm sure this year will be the same as all the others: a slowly rising crescendo of excitement mounting to frenzy, the piling of a million details on a million more, a conviction that things can't possibly be ready in time, until finally, five minutes before the flag falls, you find yourself standing in the hot Florida sun across the track from the car, your stomach full of butterflies, a hundred unanswered questions buzzing in your head, and all resolving into one in the end: How am I going to get through the slot without being run over by 59 other automobiles? At that moment, nothing else matters very much.

That's how it was last year, and that's how it will be this year. We ran a team of three MG A's last year, and while we were never in any danger of blowing off the Ferraris, the Jaguars, the Porches, still we did finish all three cars, and in line abreast, and we did take the team prize. It would be nice to do it again.

We had quite a time putting that team together last year. I had my own entry, and there were two factory entries that had not been picked up. We managed to enter all three cars as a factory team: Dave Herson of Washington, Sidney Blackman of Warren, Penna., and my car. Gus Ehrman drove with me in the #49 car, Steve Spitler and Major Bill Kinchloe in the #50 and Johnny Van Driel and Fred Allen the #51. We had Sid Blackman, Bob Cron and Hank Dahl as reserve drivers. The cars were prepared separately in Washington, New York and Pennsylvania.

We were entered strictly stock and we held tight to it. We pulled all three engines, of course, and stripped the cars. But we did little to them mechanically beyond careful, precision reassemby. We installed belts and tonneau covers, extra rear-view mirrors—driving a small car at Sebring you want to know when somebody's coming up

Photos by Dan Rubin

Here one of the engines is in the process of being stripped down to bare block. Bearings, rods, oil pump and lines were examined with care.

Conventional windshield was removed and replaced with racing windscreen. Belts, tonneau covers and extra rear-view mirrors were added before loading.

behind—and an extra oil pressure warning light. We fixed hood safety straps, bolted-in fire extinguishers, and strapped first aid kits and spare parts kits to chassis members and floor boards. We washed and waxed them and loaded them on the trucks for the long ride South.

Sebring is a quiet little town for 51 weeks of the year. For the 52nd week, in the middle of March, the place turns upside down. It's in the center of the state, and a nuisance to get to in some ways, but once you pull in it's always worth it. It's big citrus country around Sebring; the scent of oranges and grapefruit hangs in the warm, still air. From six in the morning until past midnight, wherever you are you can hear, sometimes near and sometimes far away, the ripping snarl of somebody's straight pipes. Those are the two things you always bring away from Sebring: the smell of oranges, the bark of tight-tuned engines. For some they recall happy memories, for some—not so good. There was for example the chap who drove the race, had a cup of coffee and a quick wash-up and climbed into a Ferrari coupe to drive home. He went to sleep and hit a tree. He got out of the hospital after a while, but I doubt he has very happy recollections of orange groves. I remember a couple of other fellows, one a top mechanic, the other a high-ranking Detroit engineer, starting for the circuit about midnight to test a new transmission. The car was an Allard, and it was running a Hydramatic. Half-way out the long straight road to the old B-17 airport that forms part of the Sebring course, the little men pulling the levers down-stairs in the box got their signals crossed and at a gentleman's 40 mph the gears locked solid. The car spun and dove backward into the inevitable orange grove. Nobody was hurt, but it was a thoughtful-looking pair who came back to the garage. They were wondering what it might have been like ten minutes later at say, 130 miles an hour down the long back straight, and nobody else on the course even to come along and pick up the pieces. The Allard didn't run that year.

Every year the town fills up a little earlier. There were ten factory teams in town in '56: two from Maserati, 3-liter and 1½-liter cars; two Jag teams; three Ferraris, running as a works team, five Corvettes ditto, three Arnolt Bristols, three Porsche Spyders, three Austin-Healeys, the Aston Martins, three Mercedes 300SL's, a pair of DB's and a pair of Morgans.

There were some chauffeurs to go with the machines, too. Hawthorn and Titterington were going for Jaguar; Fangio, Castellotti, Musso, Portago and Harry Schell were on the Ferrari roster and Aston Martin had Collins, Par-

(Continued on page 55)

Practice . . . . A couple of fast laps—4:24.1 and 4:24.2 . . . and then knock off for the day. Race day settled for 4:37.

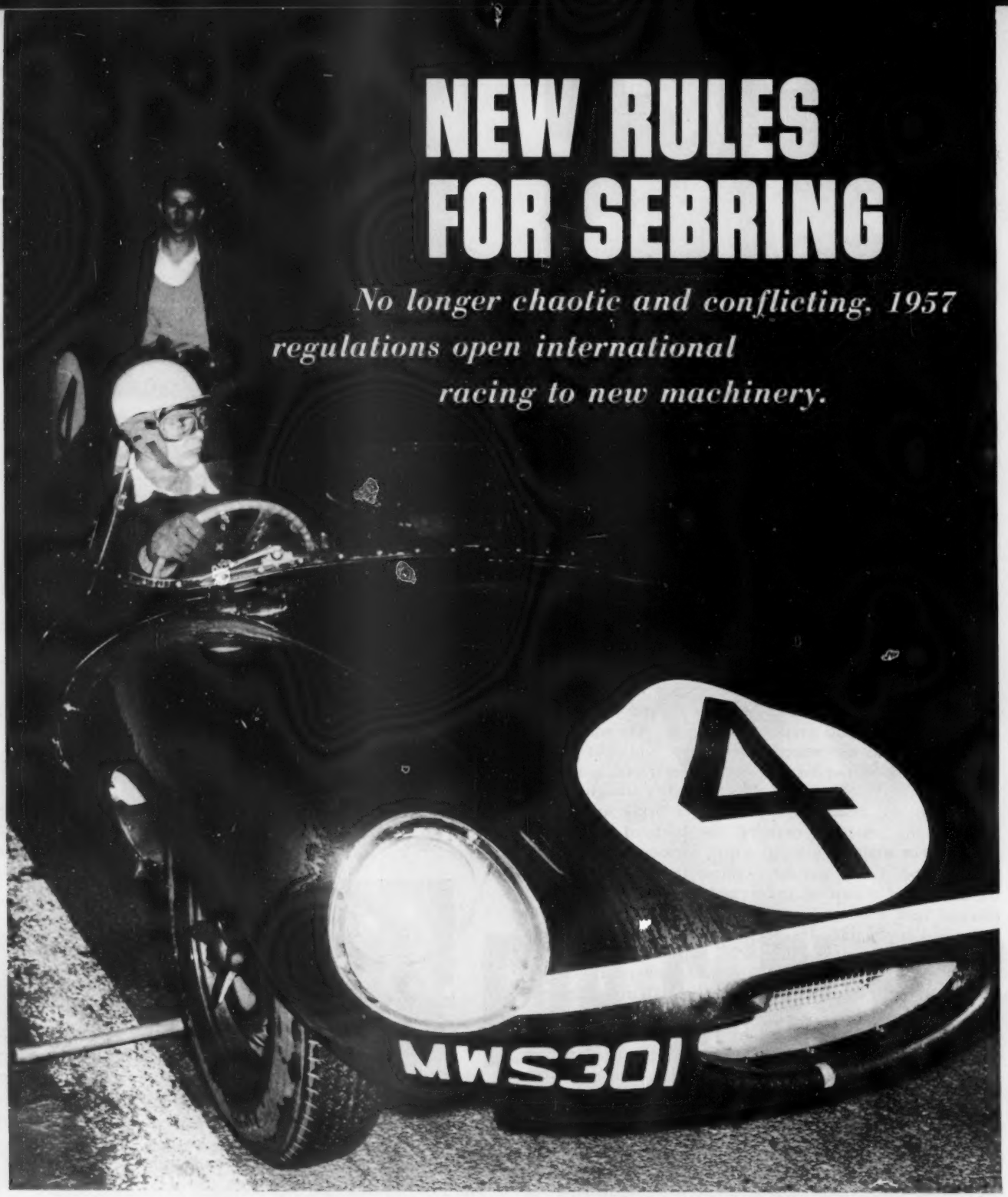
Photo by Irv Dolin

Twelfth hour tenseness. Author watches tote board as cars make final lap and write "fin" to Sebring for another year.

As they finished . . . 49, 50, 51 all in line. MG's made no startling wins or spectacular times, but they finished as they started.

NEW RULES FOR SEBRING

No longer chaotic and conflicting, 1957 regulations open international racing to new machinery.



This scene may well be duplicated at Sebring this year. It's young Ron Flockhart, wheeling winning Ecurie Ecosse D-Jag back into fray at '56 Le Mans. Such windshields, though lower, are required wear for '57. This was pattern for new XKSS.

AFTER the appalling 1955 season, race organizers all over the world holed up and tried to find solutions to their own particular problems, and for a period of over a year there was virtual anarchy in sports car racing rules. There were limits of two, two and a half, and three liters; there were course and pit changes, plus chassis, body and entry list limitations. It was disheartening at best, and we're glad to see that the FIA has plunked for a solid set of rules for 1957.

The new and intriguing Appendix C to the International Sporting Code has been adopted in full for Sebring. It defines the sports cars that may run, while portions of Appendix J (Touring and Grand Touring cars) have also been made effective. Here are the facts in full, for your careful perusal, and take special note if you want your car to be eligible for international racing. There's also a special bonus for four-door sedan owners, yet, so read on. If you're in a hurry, catch our comments at the end.

ABRIDGED FROM F.I.A. SPORTING CODE:

APPENDIX C:

Racing Cars

Will still be classed according to engine size, with the addition of a new Class K, as follows:

A)	Unlimited	—
B)	8 liters	488 cu ins
C)	5 liters	305 cu ins
D)	3 liters	183 cu ins
E)	2 liters	122 cu ins
F)	1500 cc	91 cu ins
G)	1100 cc	67 cu ins
H)	750 cc	45 cu ins
I)	500 cc	30 cu ins
J)	350 cc	21 cu ins
K)	250 cc	15 cu ins

The above classes apply for compression ignition engines. Cars driven by turbines are in two classes only:

A) Vehicles weighing over 2200 pounds.
B) Vehicles weighing less than 2200 pounds.

Sports Cars

Must have at least two seats, but there need not be two occupants. Engine size classes as above. Where weight is concerned, ballast may not be used.

BODIES: Must be completely finished without makeshift element. Seats must be each side of the longitudinal axis. Minimum interior width is 47.3 inches carried upwards for at least 9.9 inches. Spare seats may be covered with fabric or other supple material, detachable by hand (without tools).

Foot space must be at least 9.9 inches wide. Foot space front to back, plus height of seat cushion plus depth of seat cushion front to back, must total at least 43.4 inches. Seat backs must be at least 11.8 inches high (from back of cushion).

There must be at least two doors on cars over 500 cc. Door space must be at least 19.8 inches by 11.8 inches.

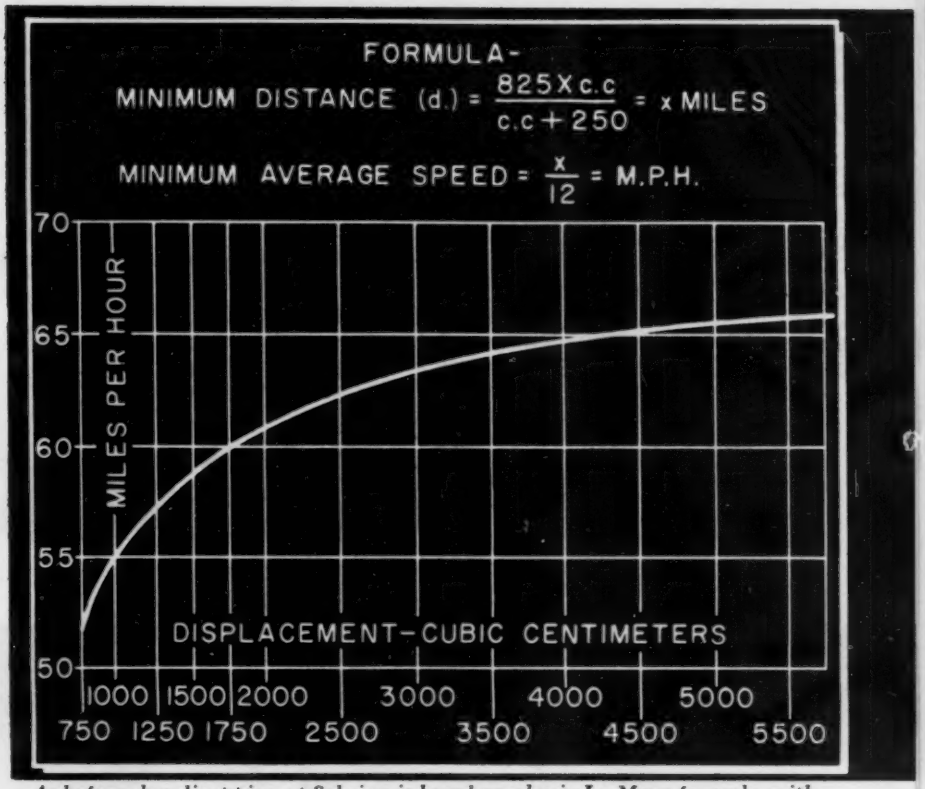
FENDERS: Must cover a third of the wheel, may have an aperture up to 30 sq. ins. for tire observation, and must cover the width of the tires. Where fenders are part of the body, these things still apply. Rear of fenders must not come lower than the hub caps. Fenders must not turn with the wheels, must be solid with the body and have no gap between.

TOPS: Obligatory for tech inspection, must cover all seats, leaving doors free. Supplementary regulations may allow tops to be removed for racing.

WINDSHIELDS: Obligatory, right across the car, 39.4 inches wide (on the chord to the arc of a curved screen) and at least 5.9 inches high (vertically). Automatic wipers are obligatory.

CLOSED CARS or CONVERTIBLES: Must conform to the foregoing. Side windows must measure 19.8 inches by 11.8 inches. Rear windows: 11.8 inches wide, 7.1 inches high. In racing there must be a draft through the car to clear possible fumes. Interior height must be 33.5 inches from seat cushions front and rear.

MISCELLANEOUS: Obligatory are electric starters, rear mirrors (area 7.8 sq. ins.), efficient mufflers, horns, lights, and cars must comply with the traffic regulations of their country of origin or registration.



As before, handicapping at Sebring is based on classic Le Mans formula, with introduction of new constants for conditions here. What's your target speed?

APPENDIX J:

Category I — Touring Cars

Subdivided into three groups:

1) Normal series production Touring cars.
2) Improved series production Touring cars.
3) Special Touring cars.

Category II — Grand Touring Cars

Subdivided into three groups:

1) Normal series production Grand Touring cars.
2) Improved series production Grand Touring cars.
3) Special Grand Touring cars.

Promoters are free to choose whatever group or groups they wish; the combining of several groups is also authorized.

The engine displacement classes are now listed in the Revised Appendix J as follows:

11)	Unlimited	—
10)	5000 cc	305 cu ins
9)	3500 cc	214 cu ins
8)	2600 cc	158 cu ins
7)	2000 cc	122 cu ins
6)	1600 cc	97 cu ins
5)	1300 cc	79 cu ins
4)	1000 cc	61 cu ins
3)	750 cc	45 cu ins
2)	500 cc	30 cu ins
1)	350 cc	21 cu ins

Category I Groups 1, 2, and 3 cars must have been produced in the minimum quantity of 1000 units in 12 consecutive calendar months.

Category II Groups 4, 5, and 6 cars must have been produced in the minimum quantity of 100 units in 12 consecutive months if they have closed or convertible coachwork, or 200 units in

(Continued on page 54)

The Mille Miglia has always had large Gran Turismo entries, this type 250 Ferrari driven by Giovanardi being typical of the best. New Appendix C may foster a return to coupe bodies.

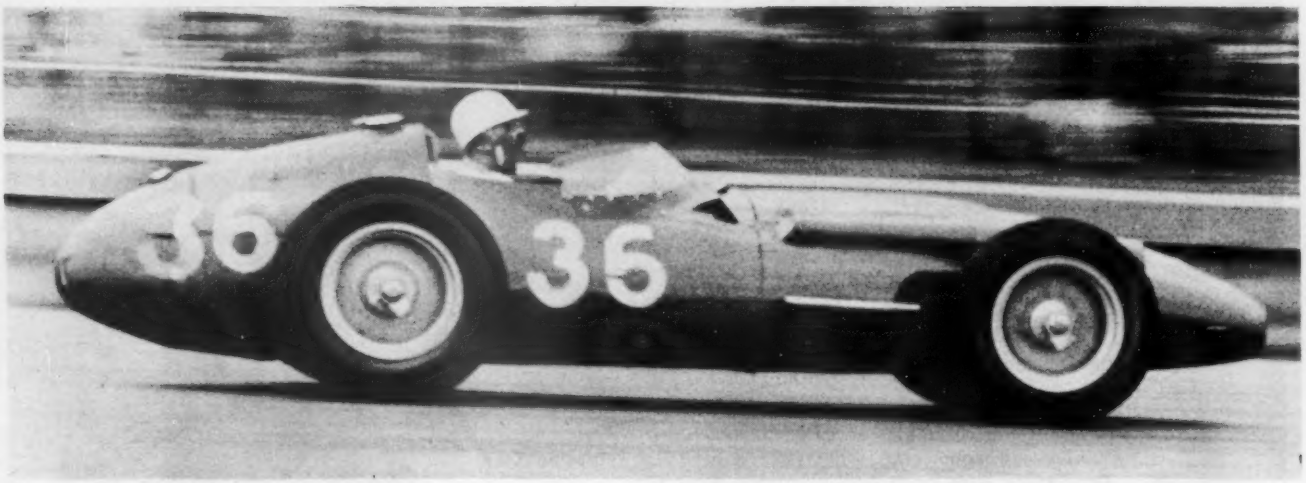
Ferry Porsche also feels that coupes are the answer, judging by '56 Le Mans cars. Drivers can sit comfortably in shirtsleeves, but are also subject to fumes, heat and racing engine racket.

All sauce and sizzling hot,

Maserati's latest

G. P. threat is definitely...

NO MEATBALL



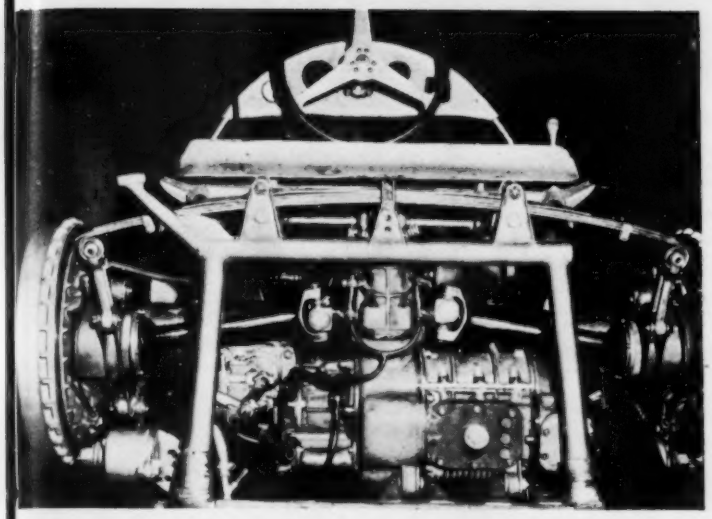
Ultra-lowness of offset Maserati is impressive as Moss hurtles by pits at Monza. Fuel filler is just behind seat, oil cap for tail tank farther back. Hot air venting is neat, and carb air duct extends past front wheels.

By JESSE ALEXANDER

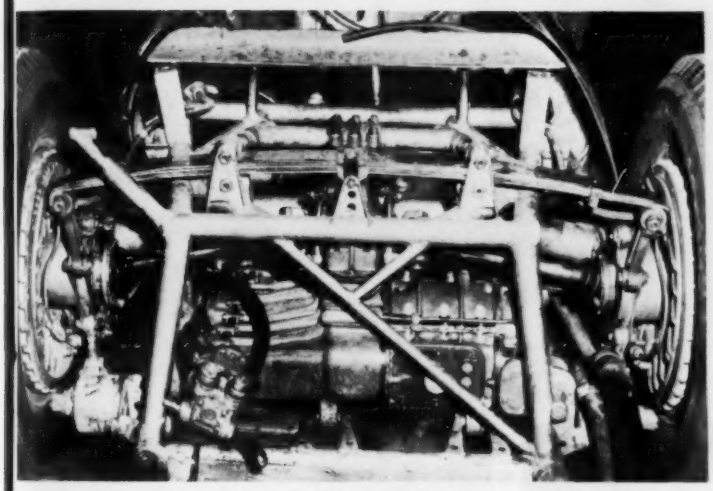
THE EAR-SPLITTING NOISE of the racing engine being run in at 6000 rpm on the test bed literally tears the air apart around us. With a sudden snarl, the throttle is opened and the six cylinder mill howls up to 7500, then 8000. We look at each other, look at the sky and laughingly hold out our hands to catch the pieces of flying metal . . . if and when. Then the sound dies away to a low, muttering idle. Engineer Alfieri, chief of research for Maserati, at Modena, Italy, comes out of the test house, makes some notes, and then comes over to our group to welcome us to the factory. The place is run by the younger son of the Orsi family, and he and his aide, former Ferrari race chief, Ugolini, have experienced a busy racing program in the past year.

A quick glance at the year's Formula One events will show that they've had their ups and downs. They managed to win only two out of the six major events in 1956—the rest were Ferrari victories. But the one thing demonstrated by Maserati in 1956 — by Stirling Moss (their number one driver) in particular — is that despite the sometimes slap-dash and disorganized factory attitude, they do somehow manage to build a racing car that will handle and go when and if the engine is set right. At Monte Carlo, for instance, the Lancia Ferraris were no match for the Maser. Moss got off to a terrific start and never allowed Fangio to worry him — the World Champion bending his car in an attempt to catch the flying Englishman. Moss' car was fitted with carburetors despite the fact that a port-type fuel injection was tried out in practice. It had proved to be a dead loss and the car was taken back to Modena for further tests. A special high-torque cam and head combination finally proved to be the answer at Monaco.

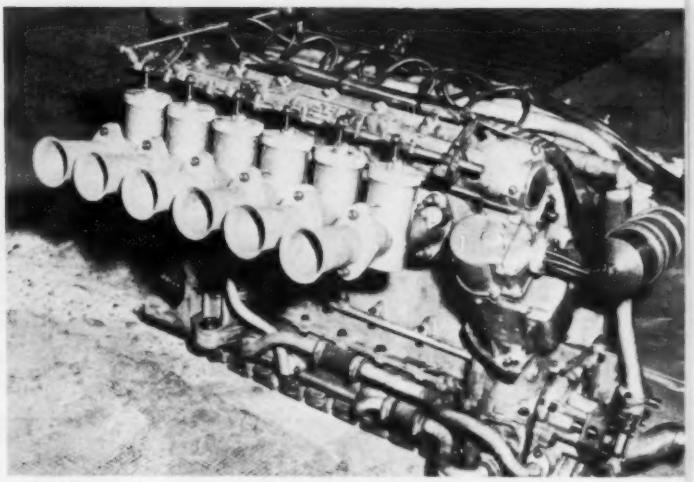
At the Grand Prix of Belgium three weeks later, the Maserati equipe arrived with a car incorporating direct fuel injection similar to the Mercedes-Bosch system. This car was also fitted with high cockpit sides and a ducted radiator. Moss made several fast laps in practice but everything came to naught when fuel checks showed that the injected engine was heavy on fuel consumption and there was a good chance that it might not finish a full-length Grand Prix without refueling. Moss indicated that the car had an obvious increase in power output but since the unit had now been thoroughly proven, he elected to drive the conventional type.



And that was that for the whole series of Grand Prix events held during the summer. Maserati now took a back seat to Ferrari. It just couldn't cope with the tremendous torque and acceleration of the V-8's—except on one occasion, and this was on Moss' home ground in England. During the British Prix held at Silverstone, the Maserati proved to have better handling than the Ferrari. Moss led the event for a good part of the time but was forced into the pits following a loss of engine revs. Up to that time, however, Fangio had been in contortions trying to keep up. He spun once and the World's Champion's face wore an expression of terrific strain while Moss circulated all the while in his usual "Sunday-drive" manner. The Maserati is apparently much better on those circuits where medium-fast corners prevail.



Top picture shows 250F Maserati rear end, as used in 1955-56, while below is similar shot of offset car. New assembly keeps old gearbox and final drive, adding extension to left for drive shaft. Roller cross spring mounts can be seen, as can new car's angled chassis strut for Monza stresses.



Injection rig is bolted onto standard 250F engine, uses multiple slide-valve throttles for air control. Hex plug at base of #1 throttle marks old injector location. Two pipes at sump feed oil to twin scavenge pumps.

SPECIFICATIONS

Maserati 250F Offset Grand Prix Car
Builders: Officine Alfieri Maserati S.p.a.
322 Via Ciro Menotti
Modena, Italy

POWER UNIT:

Type	six cylinder, in line
Valve arrangement	inclined overhead, 80° included angle
Bore & Stroke	3.31 x 2.96 in. (84 x 75 mm)
Stroke/Bore Ratio	0.89/1
Displacement	150 cu. in. (2493 cc)
Compression Ratio	12/1
Carburetion by	3 Weber 45DCO3
Max. bhp	285-290
Max. Torque @ rmp	209 lb.-ft. @ 6000

CHASSIS:

Wheelbase	90.5 in.
Front tread	51.1 in.
Rear tread	49.1 in.
Wheel size	Normal: 16 in. Monza: 17 in.
Tire section	Front: 550, Rear: 700

GENERAL:

Dry weight	1411 lbs.
Wet weight	1929 lbs.
Fuel capacity	approx. 64 gals.
Oil capacity	20 qts.
Water capacity	15 qts.

It was not until Monza, early in September, on the occasion of the Grand Prix of Europe, that Moss really made up for the previous losses. For once Maserati stayed together and while the Ferraris of Musso, Castelloti, Portago and Fangio all went out one by one with broken steering arms or blown tires, Moss toured around in perfect calm—that is until his engine began to sputter on the 47th lap, the car was running out of gas. Frantically he waved to Piotti in another Maserati. Piotti grasped the situation and swung in behind Moss bumping him easily so as not to damage the tail too much, and then gently nudged him around the circuit to the straight in front of the pits where Moss coasted in to a frantic last-minute refuel. Then he was off again to recapture the lead and to win.

The car Moss drove at Monza was a new machine — new chassis, new rear end unit — with the engine set in at an angle and the prop shaft passing underneath the driver's left leg. The wheelbase on the new Maser is approximately one inch longer and the overall height is down by three inches, so the car looks considerably different. It's certainly the lowest and sleekest of the current Formula I machines. Two of these new chassis were built. Moss was given one,

Behra the other. The basic chassis frame is like the older 250F type in its simple truss-type tubular layout, but the side sections are lower and longer, particularly from the cowl forward. Additional vertical bracing has been added here, and drilled sheet steel reinforcements were welded in above the front Houdaille shocks. This latter looks like an afterthought for the tough Monza track, but the basic shock placing isn't good. Much of the rest of the chassis looks cut-and-try instead of calculated.

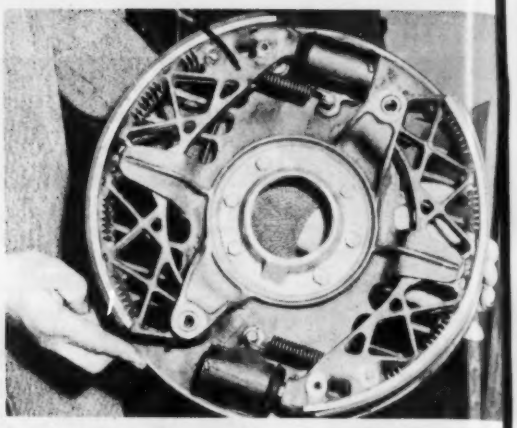
Air flow both inside and outside the Maserati's snout is improved by its elongated form. While the first new '56 version ducted the warm air up, the offset car feeds it down below the front suspension.

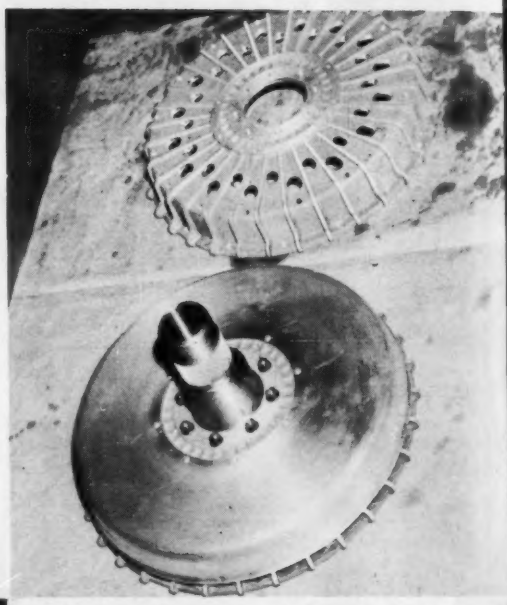
Geometrically the new front end is very close to the older 250F's, with coil springs and markedly unequal-length wishbones. The arms themselves are now I-section instead of rounded, however, producing a slight weight reduction. Connected by long links to the bottom wishbones, the torsion anti-roll bar is placed above the suspension.

At the rear, the de Dion suspension remains substantially unaltered. The de Dion tube runs forward of the final drive group, and carries a square block which slides in the front of the differential case for lateral location, and keeps the roll center the same distance from the ground at all times. Braking reaction and other placing is handled by parallel radius rods at each side.

The five-leaf transverse spring is placed well above the hubs, and its center clamp is free to move up and down but not sideways. Nine inches from the center clamp on each side, the spring is held by a pair of rollers. This gives the whole system a lot of flexibility, and has the effect of increasing the roll stiffness. The Fiat 600 does the same thing on the front end with rubber clamps—study the spring action and you'll see. Moss was completely satisfied with the handling.

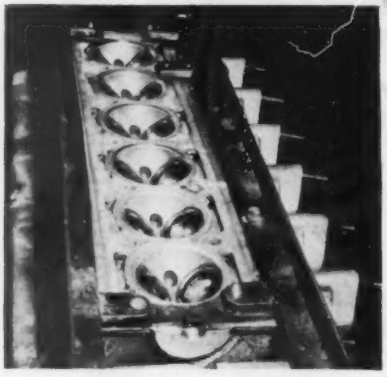
No changes have been made in the transversely-mounted five-speed gearbox which still sits to the right of the car's





Maser brakes are deceptively simple to unaided eye, but within are many wonders. At top is beautifully webbed brake shoe assembly, which gives light weight, even shoe expansion and great stiffness. Two central guides reduce grabbing tendency of 2LS layout. Below are cast brake drums, with and without hub and venting shield. Duct holes from interior are seen at top, aligned with radial ribs.

Long snout gives smooth air flow, plus even expansion inside to rear-set radiator. Intake air box is recessed for ram tubes on triple Webers.



Detached cylinder head shows fully machined spherical chambers, heavy valve seat inserts and 6 of 12 plug holes. Ports are rough-finished.

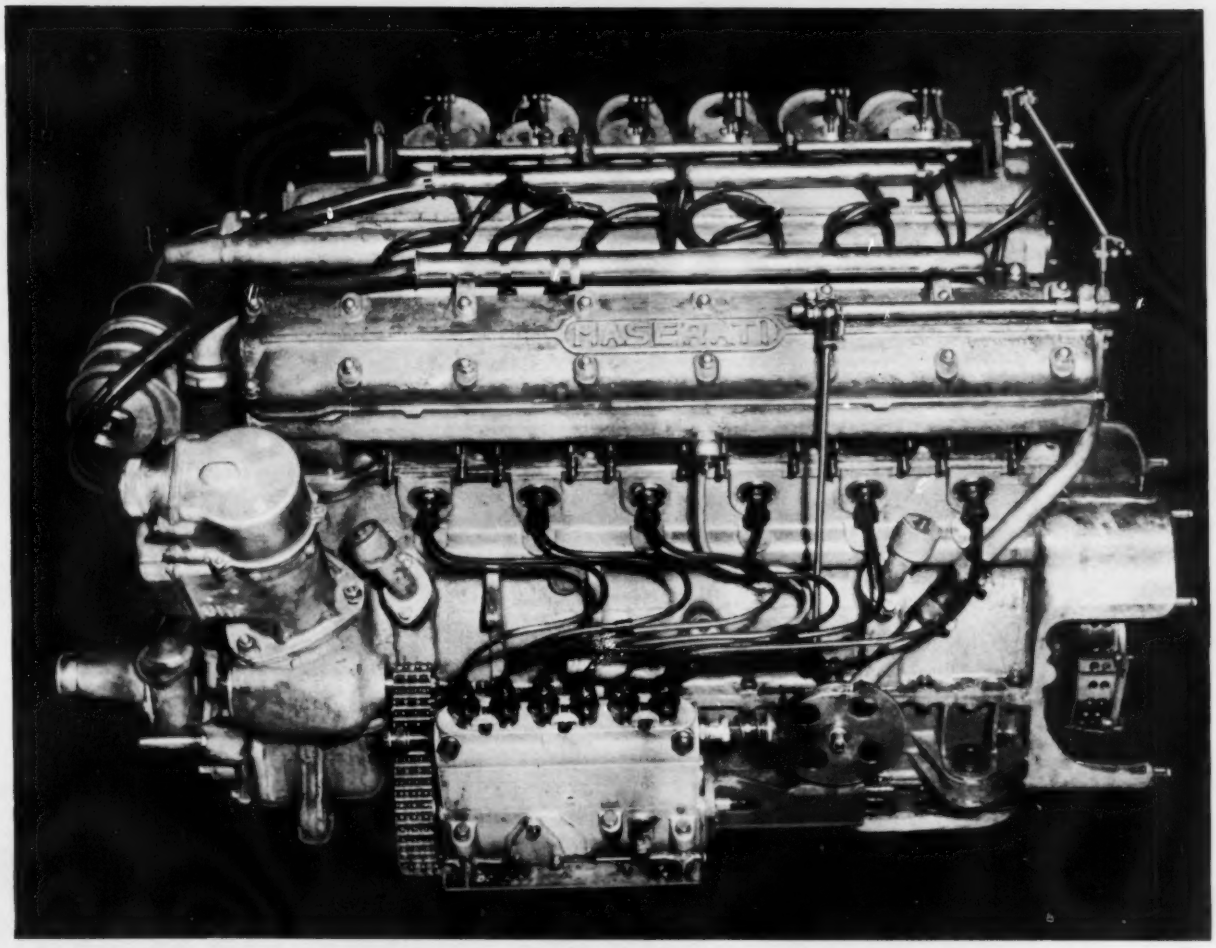
centerline, at the rear. A wholly new input casing carries the extension shaft and bevel that shifts the drive shaft from the center to the left. The rear fuel pump is now driven from an extension of the prop shaft pinion instead of by belt.

The inner universal joints are exposed Hooke-type, and their outer yokes are machined integrally with the hefty half-shafts. Like Ferrari, Maserati fits pot-type universals at the hubs to allow for length variations in the half-shafts. When Mercedes revived the de Dion layout, they put the heavy pot-type joints at the *inner* ends where they become sprung weight and are much more easily lubricated. This makes a lot more sense to us.

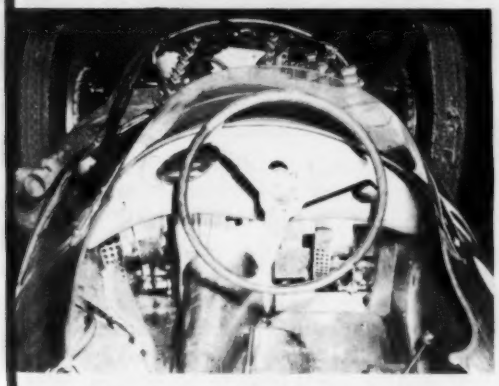
Orsi Maserati brake drums have always looked odd, with their calmly smooth outer surfaces. That aluminum shield covers a system of radial fins which centrifuge air outward over the drum face and rim, and draw it from the interior through 32 holes in the face. Thanks to the web-like backing plates and high peripheral speeds this does the job without the air drag of scoops, though at first glance the capacity looks low.

All four wheels carry two-leading-shoe brakes, with an additional central guidance point for each shoe. The shoes are backed by an almost lacy truss structure and a multitude of tiny fins. Nowhere but in Italy!

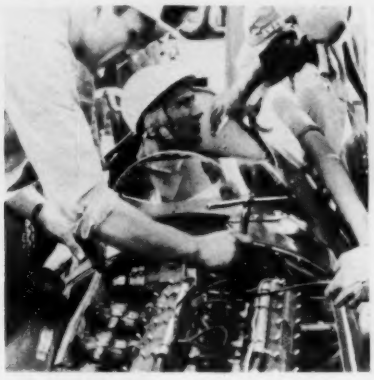
The now-classic Maserati six is angled moderately to the left to allow room for the posteriors of Moss, Behra, *et al*,



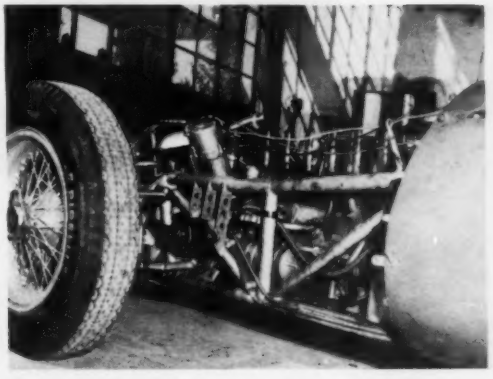
An impressive hunk of machinery, the injection 250F is simply done. Output of chain-driven Bosch-pattern pump is controlled by disc cam at lower right. Rube Goldberg linkage ties this to gang of air throttles at top. Nozzles, just below exhaust ports, are angled up to inject between tops of wet liners and bottoms of exhaust valves.



Brake pedal actuates twin cylinders, is to right of accelerator. Left leg rests between shaft tunnel and sponge pad. Ring at left controls radiator blind.



Moss is attentive as young Maser designer Alfieri (upper right) gives him the word, while the plugs are checked at Monza tests.



Frame is true truss type, with added braces for Houdaille shock. Suspension arm forgings have new I-section, just below high anti-roll bar. Finish is second-rate.

but is not canted from the vertical. This engine has changed only in detail since it was introduced in 1954, and even then it was a direct descendant of the preceding Formula II engine. Mechanically the carb and injector engines are identical.

The bottom of the alloy block is machined off right at the crankshaft centerline, leaving no direct bracing for the seven main bearing caps. Each has four bolts, however, two of which carry through to the long cylinder head studs. The crankshaft is machined from a single piece and is *not* polished.

A bulkhead divides the very deep Electron sump into two separately scavenged sections and a longitudinal baffle placed at an angle scoops excess oil splash off the crank and directs it down. All the oil pumps are low at the engine front and are driven from the cam gear train. The scavenge pumps draw from the two screened pickups (the two small breathers are placed to remove as much air as possible at these points) and drive the oil through the cooler and back the whole length of the car to the tail-mounted 20 quart tank.

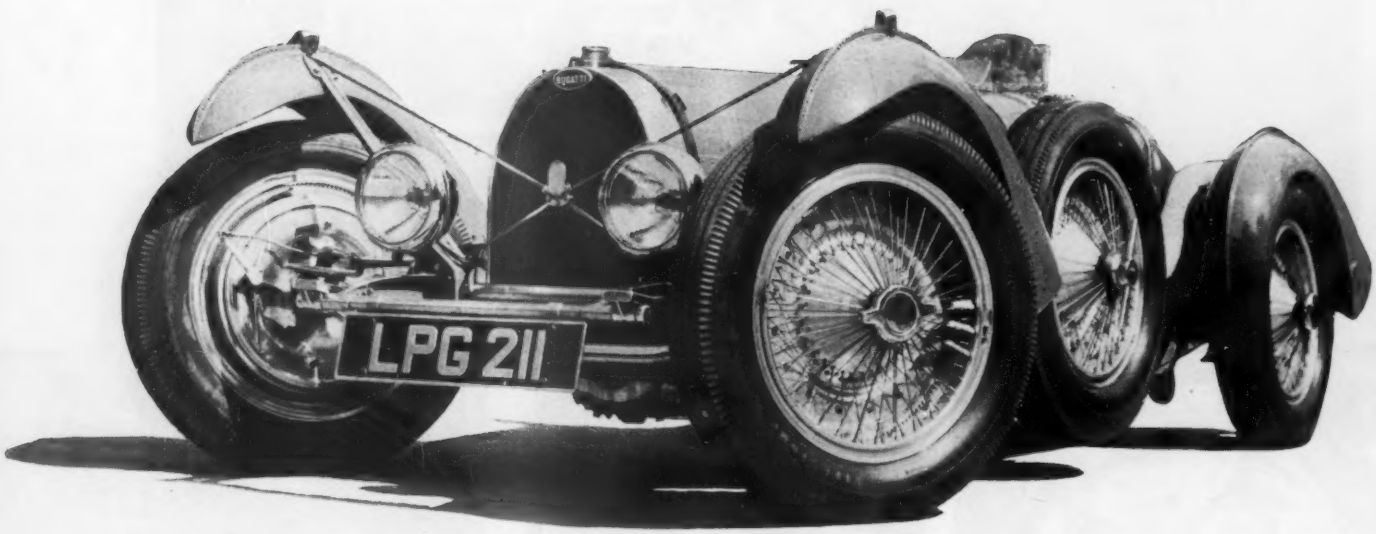
The pressure pump draws from the reservoir and feeds the full-flow filter which is normally on the left side and at the front on injected engines. Oil enters the center main from the left, then, and passes through to an *external* gallery on the right-hand side. From this the rest of the

(Continued on page 57)

the ultimate

Last of the legendary Bugs: The 3.3 Type 59

By KEN W. PURDY



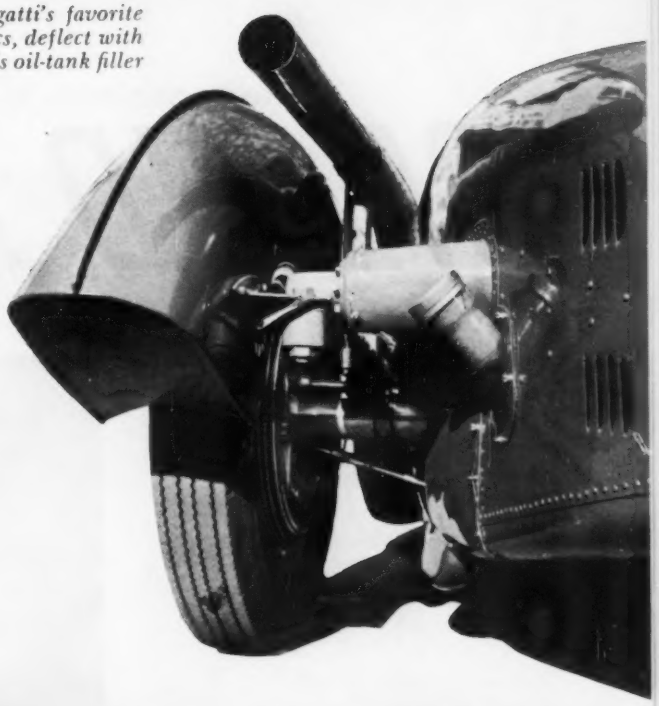
IN 1932 the Grand Prix formula for the years 1934, '35 and '36 was announced; 1650 pounds maximum weight, 33½ inches minimum frontal area. The Nazi government handed the Mercedes-Benz and Auto-Union factories $100,000 subsidies and they produced the four-liter W25B Mercedes and the six-liter Type C Auto-Union. Ettore Bugatti, who was not, of course, getting a *sou* of subsidy from his government, built the 2.8-liter Type 59.

It's commonly thought that the Type 59 was the last of the racing Bugattis, but it was not. Before World War II blew everything apart, the Molsheim factory had run the 3.8 Grand Prix car, the blown three-liter, the 4.7 sports, the blown 4.5 and 4.7 *monopostos*. The 4.7, incidentally, has a special place in history: driven by J. P. Wimille, it won the very first European post-war race: the Coupe des Prisonniers, September 9, 1945. But the Type 59 in its best-known form—3.3 liters supercharged—overshadowed the other cars.

The Type 59, putting out a modest 260 horsepower, could hardly compete on level terms with the contemporary Mercedes-Benz and Auto-Union cars, both of which delivered 430, but within its limitations it was a successful model, and had the competition in its day been factory-to-factory, it might have been the world-beater the Type 35 had been. As it was, it set up a respectable record. The car ran first in the Spanish Grand Prix of 1933, as a 2.8-liter, and finished fourth. In 1934 the bore was increased from 68 to 72 millimeters and in that year and 1935 it won a fair number of events. Rene Dreyfus took the Belgian Grand Prix in a 3.3, Wimille and Benoist won the Picardy and Algiers G.P.'s, the car was first at Mannin Moar, 2nd in the Tunis, Lorraine and Donington G.P.'s, 3rd in the Coppa Acerbo, in the Monaco and Spanish Grand Prix events. The car was timed on the San Sebastian straight at just over 168 miles per hour. Another 3.3 ran 147 while missing on one cylinder. The car continued to compete in 1936 and 1937 and in the latter year Wimille ran 162 miles over the 12-mile Montlhery road circuit at 91.13 miles per hour—a hair below the then lap record, held by Mercedes-Benz. Wimille set the new record, 92.44, and it still stands.

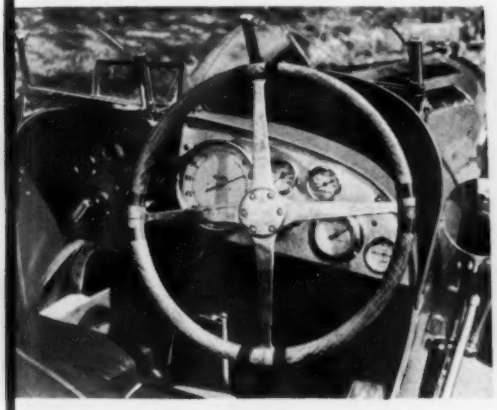
The only 3.3 Type 59 (a Type 59 can be 2.8 or 3.3 or 3.8) in this country belongs to Mr. F. H. Ludington of Pelham Manor, N.Y. This is the ex-Brian Lewis car, the Mannin Moar winner, and Mr. Ludington bought it from Rodney Clarke. It can honestly be described as a fantastic automo-

Photos by Irv Dolin



Rear springs, Ettore Bugatti's favorite reversed quarter-elliptics, deflect with reluctance. Pipe at right is oil-tank filler

bile. So much nonsense has been written about Bugatti automobiles that superlatives applied to them have lost much of their force. There is one school of writers which holds that all Bugatti devotees are glassy-eyed morons who "drool" every time they see a Bug. "Drool" is a colloquial and archaic form of the word "drivel" and "drivel" means to allow saliva to run down the chin while, at the same time, talking like an idiot. Members of the "Drool School" of motoring journalists, even when writing about one of the lesser Bugattis, say a Type 38 or a Type 57, will tell you that this is a car which causes the true fanatic to salivate uncontrollably, whimper, pant, and exhibit involuntary spasmodic twitching. I think I have written as much about Bugattis as anyone in this country, and I've seen more of them than most, and every time I approach a new one I look around covertly for wet chins and glassy eyes. So far I've always been disappointed. Dyed-in-the-wool 33rd-degree Bugattistes of the stripe of Charles Addams and Ralph Stein might drive 500 miles in a howling gale to see a strange Bug., but even if the thing turned out to be a Type 57SC that had been run a



Driver's view. Instrument panel is non-standard, so is clutch-stop (vertical lever in center.)

Mudguards and lights were added to Grand Prix car by English owner. Note Bugatti's "split" front axle.

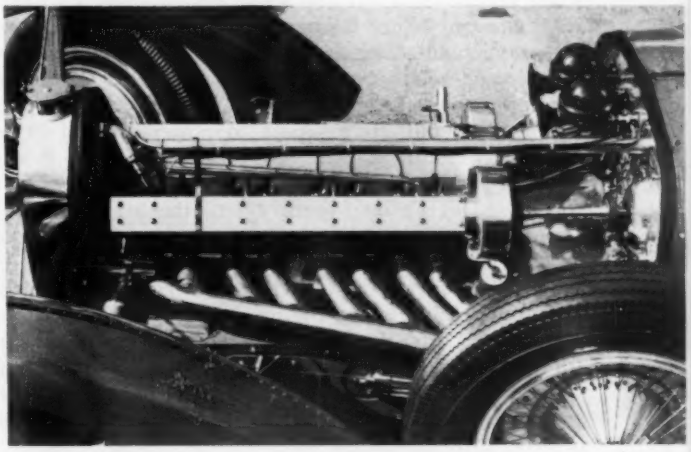
The 3.3 Bugatti (actually 3,257 cc.) produced about 260 horsepower, had a top speed very close to 170 MPH.

total of 100 kilometers and then sealed in pliofilm I doubt either of them would say more than, "Nice, isn't it."

I remember when Mr. Ludington's 3.3 came off the boat, in a crate, naturally. When it was unpacked it looked like something executed by Cartier's. There was no square inch on the automobile that would have soiled a white glove, and I include the exhaust pipe for as far as I could reach inside it. It was the most nearly immaculate automobile I've ever seen, obviously of the highest drool-quotient, and the place was full of Bug.-lovers. Later I checked the garage floor for telltale drool-droppings. Negative.

Mr. Clarke had a simple, straightforward system of maintenance. First off, he owned a commercial garage. Second, he employed a strong-armed youth of 18 or so whose duties were clear-cut and limited. Beginning on Monday morning, he polished the 3.3. By Saturday he had finished and on Monday he could begin again. The axles, springs, brake-gear and so on are unplated steel. The so-called "piano-wire" spokes are steel, and would rust in a light fog. When Mr. Clarke wanted to take the car to, say, Prescott to run it up the hill at a Bugatti Owners Club meeting, all the bright work on it

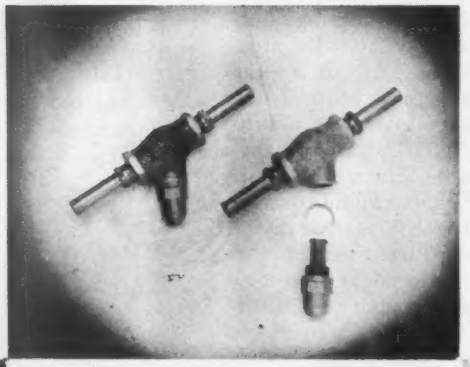
(Continued on page 64)



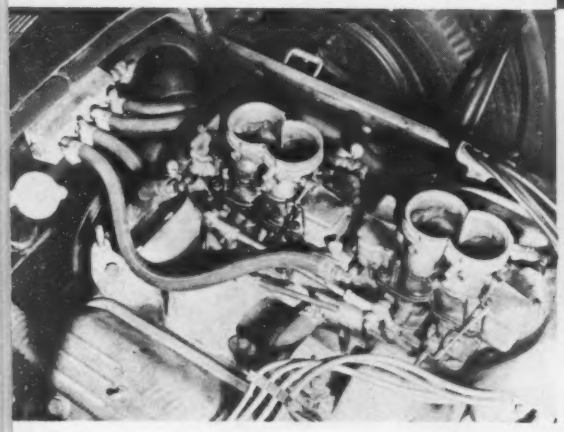
DOHC straight-eight engine was typically clean, straightforward design. Note oil-cooler tubes behind spare wheels thin spokes, serrated rim.

GRAND PRIX FUELS

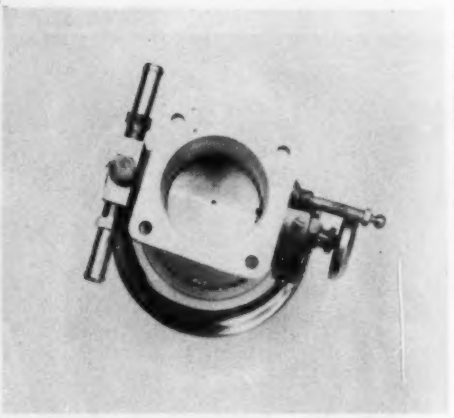
First Ak Miller road racing machine, the "Caballo", had four Stromberg 97's cheek by jowl to feed the big Olds mill. Fuel block, piping, linkage are rugged for racing reliability.



View into bottom of Norden injector shows throttle, which contains metering valve and outlet for fuel. Idle and main metering adjustments are at right.



Small fuel filters, inserted in line where convenient, are a step toward eliminating flow stoppages and resulting harmful lean mixtures. Costing about $3.50, easy to clean.



By BOB PENDERGAST

THE booming popularity of Formula Libre events has brought about a confused attitude among sports car and road racing enthusiasts. No one seems to be just quite sure what leeway is allowable when transferring from the sports car class to the "open" events.

The most outstanding path to power allowed Formula Libre contestants is *fuel*. Aside from the obvious advantages of not having to tote a starter, generator, spare tire, horn, passenger's seat, fenders, etc., the big difference between Formula Libre machines and their supposedly street-driven counterpart is what's in the tank.

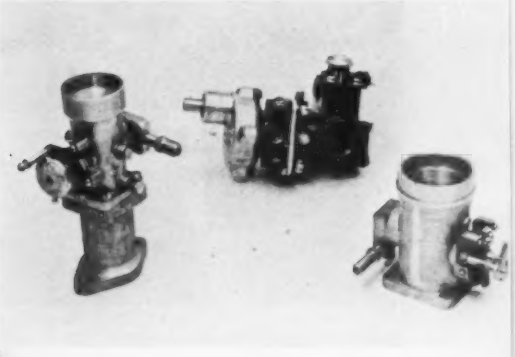
For most sports car owners considering competition in a Formula Libre event, the first thing that comes to mind when unrestricted fuel is mentioned is aviation gas. Therefore we'll go on record right now as saying that "av-gas" can wreck an automotive engine *unsuited to the use of this fuel* just as fast as a heavy overdose of the hot rodders' favorite, nitro-methane.

Aviation gasoline's undeserved reputation for being "powerful" arose out of the almost universally-accepted misconception that a high octane rating necessarily produces a high power output. This is untrue, because aviation gas produces more power than lower-octane automotive gas only if used in an engine which *will not run properly* on automotive gas!

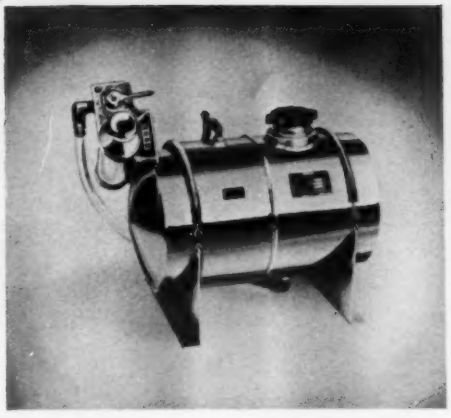
Aviation gas has one principal claim to fame—its octane rating. If a given engine has such a high compression ratio that ordinary automotive gas pre-ignites producing the familiar ping, the higher octane of aviation gas will probably allow the engine to produce full power without pinging. But – aviation gas burns slower than gasoline intended for automotive use. The detrimental effect of slow burning on power output is usually offset by the greater power increase available through the use of a higher compression ratio. This potentially higher output may last only momentarily, however. The slower-burning av-gas may raise the

A dose of "Pop" or Nitro isn't the only answer. For long distance events fuel mixtures must be tailored to the course if the car isn't to leave in a basket.

At roughly $60, Moon's "Weekend Warrior" rig allows fast switch to racing fuels for your car. Just connect it to fuel block, convert carbs to proper mix.



Float bowl on Norden carburetor can be turned through 360° for any desired carb application. At right is remote accelerator pump, only one is needed for multiple carb setup.



Norden range, L to R, is carburetor, injector pump with equalizer diaphragm for blown engines, and experimental 2 inch injector. Units are very flexible.

temperature of hypersensitive exhaust valves to the point where they warp, and do not effect a proper seal. Lost cylinder compression, on both the compression stroke and power stroke, is the result.

We say that the use of av-gas *may* cause burned exhaust valves because two precautions can be taken to prevent this occurrence and some engines (notably those designed for av-gas) have them. They are high compression and short-duration valve timing on the opening portion of the exhaust cycle. The high compression makes the av-gas burn at a rate more comparable to automotive gasoline, while the later exhaust valve opening point insures that combustion will be complete, or nearly so, when the exhaust valve opens. There's then truth to the rumor about the fellow who put aviation gas in his stock car with burnt valves as a result. Used in an engine of moderate compression ratio, with an exhaust valve timing calling for the valve to lift around 70 degrees before bottom dead center, the slow-burning av-gas could still be flaming merrily away when the defenseless exhaust valve was forced to stuff its head into the conflagration!

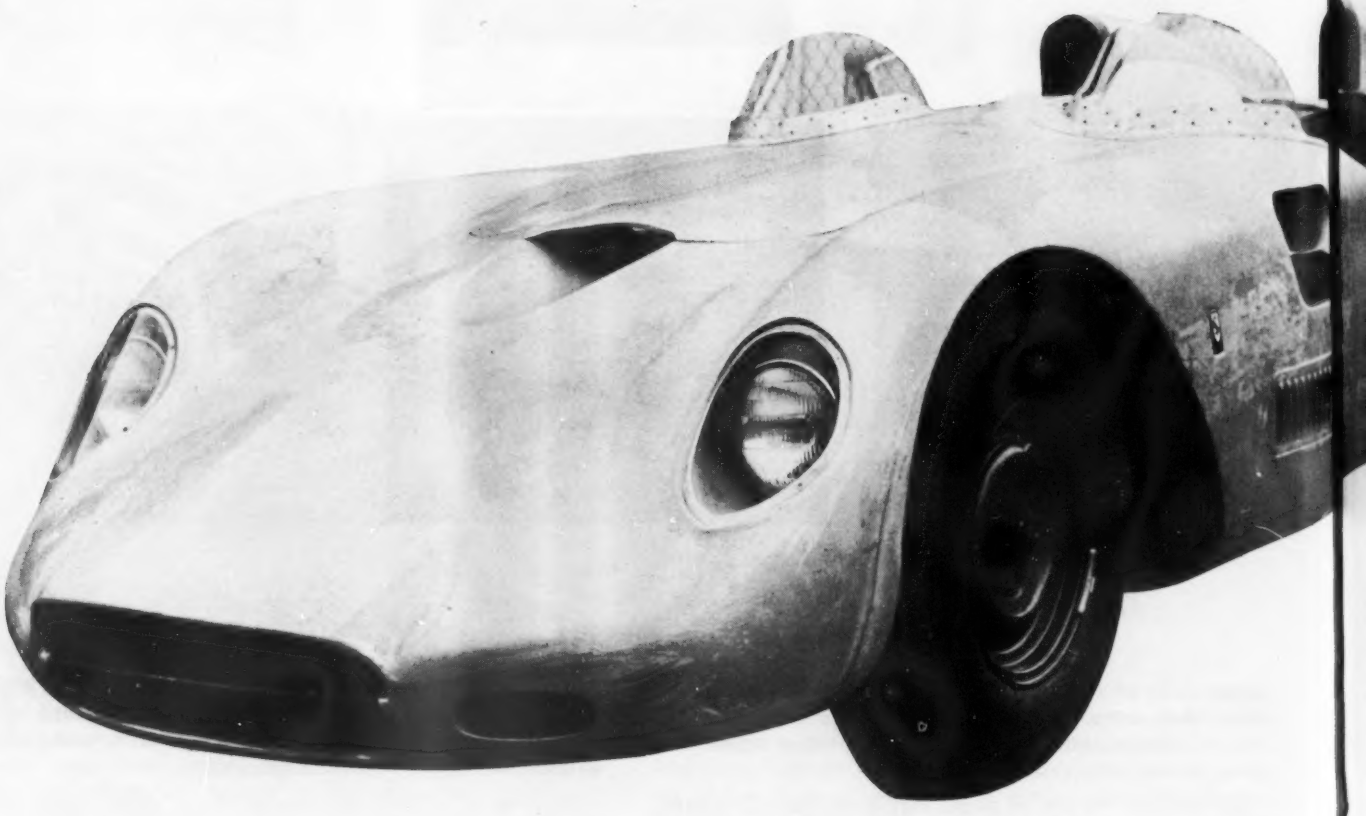
In view of all this, let's not get hasty about using aviation gasoline in a sports car. The leeway that Formula Libre allows gives us our choice of better things. Take benzol, for instance. Run straight, through carburetors correctly set for gasoline it will result in a mixture that's about 10% rich. Run in this manner, benzol has an octane rating of 130—and this without the hazardous slow burning characteristics of similarly-rated av-gas. Benzol has a higher latent heat of vaporization than gasoline, which means it vaporizes easier and quicker. Thus, for a given amount of air *volume* drawn into your engine's cylinders, the weight of the total charge will be greater if benzol has been used than if gasoline was the fuel.

(Continued on page 59)

SCI Technical Report:

CABALLO II

AK MILLER'S CHRYSLER FOR MILLE MIGLIA



By GRIFF BORGESON

THIS is the timetable. On April 23 Akton Miller and Doug Harrison, driver and co-driver, will unload their sports car at Le Havre and drive the approximately 750 miles to Brescia, in Northern Italy. They're allotting three days for that jaunt, which should allow enough time for ordeals by customs authorities and for enjoying the scenery — not to mention shaking down the machinery. They'll check into Mille Miglia race headquarters some time on the 26th and on the following day will begin a week's reconnoitering and mapping.

This will leave more than a week for the setting up of pit stops, making final adjustments on the car and so on. And on the 12th of May, God willing, the first all-American entry in Italy's classic thousand-mile road race will make its bid. Frankly, we're not betting on it to win; that would require a miracle. But we are counting on Miller's Iron Horse — *Caballo de Hierro* MK II — making a showing that most Americans can be proud of.

This optimism is based on Miller's past record of accomplishment. His new car and the seriousness of his latest effort can be best appreciated only after a backward glance at Miller's career. He was born in Denmark in 1920; his

family moved to Southern California in 1923. In '34 Ak began hopping up other people's cars (couldn't afford one of his own) and participating in speed trials on the local dry lakes.

The American sports car in those days very definitely was the home-made special or hot rod, and Miller was a pioneer of hot rod clubs and a founder of the Road Runners. In '37 he helped found the Southern California Timing Association, later was one of the founders of the Bonneville National Speed Trials and still later helped found the National Hot Rod Association.

In the field of competition few men have been as active. Miller has been a constant and always outstanding contender at the lakes and at Bonneville, always building and driving his own machines. In '52 he decided to give the Mexican Road Race a whirl. He entered a meticulously-tuned stock Olds, started in 26th place and had moved to 17th when a transmission failure put him out at the halfway point.

He liked this kind of racing and built a "sports car"

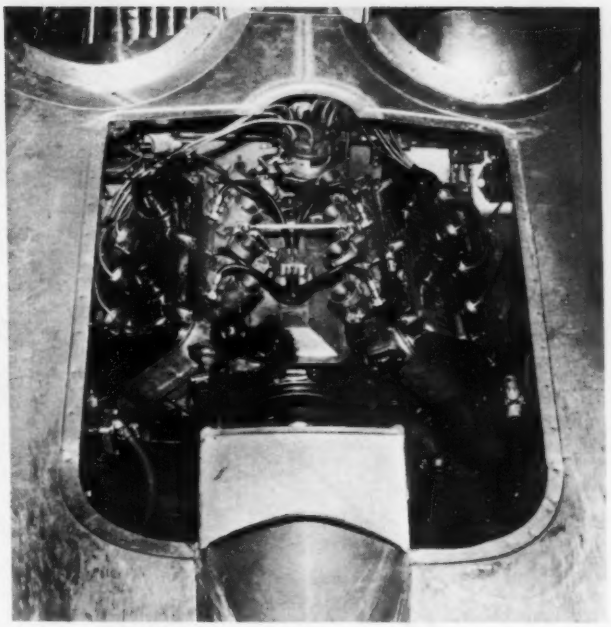
In our opinion, this latest US candidate for international honors makes the most brutal Cunningham look like a fugitive from a roller rink. Bodywork by Sutton is clean even before painting, shows exceptional attention to proper air ducting and light weight. Bar in main scoop is for structural strength, does not divide up cooling air.

for the '53 event. It was an experiment and was carried out on a shoestring. It used a modified Old V8 engine, a '50 Ford frame, was immorally heavy. As a gesture of loyalty to the hot rod sport, and one of humor and deviltry, he equipped the old Caballo with a 1927 Ford T roadster body.

Running in the big sports car class, Miller finished fifth overall — even though his car was ponderous, underpowered, and aerodynamically absurd. Doug Harrison rode with Ak all three years. Each year they drove their entry from Los Angeles to the race's start, 3000 miles away.

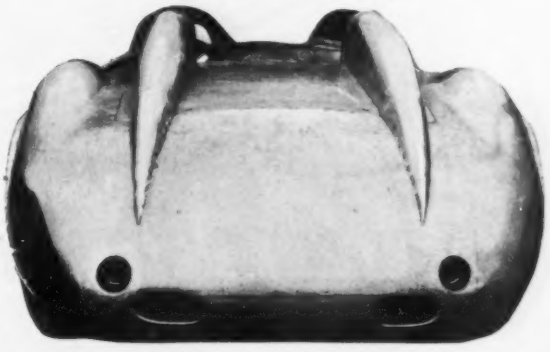
When rumors became strong that the Mexican Race would be revived in February of '57, Miller began work on a brand new sports car — a more rational and legitimate one this time. The original hope was that the hot rod fraternity itself would finance the project and a campaign for donations was waged by Hot Rod magazine. But this barely got off the ground when it became clear that there would be no race in Mexico. It was dropped after $1300 had been received and salted away.

Meanwhile Miller had gone right ahead with the construction of a new chassis, the beginning of the Mille Miglia machine. He bought a Kurtis frame identical to that in the Bill Murphy Buick-Kurtis (SCI, Sept. '56). Miller found this frame to be quite flexible: by mounting it on four points and putting a 200 pound load in the

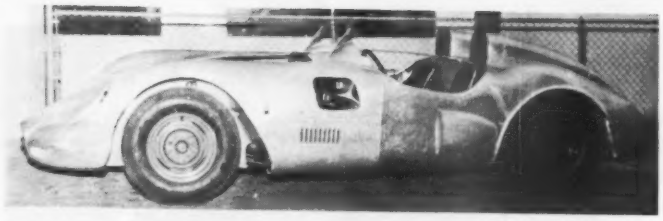


Since Ak isn't after top end output, the Hilborn injectors on the big Chrysler aren't fitted with ram tubes. Plenty of breathers eliminate pressure buildup in valve gear housings. At lower left is part of oil cooling system.

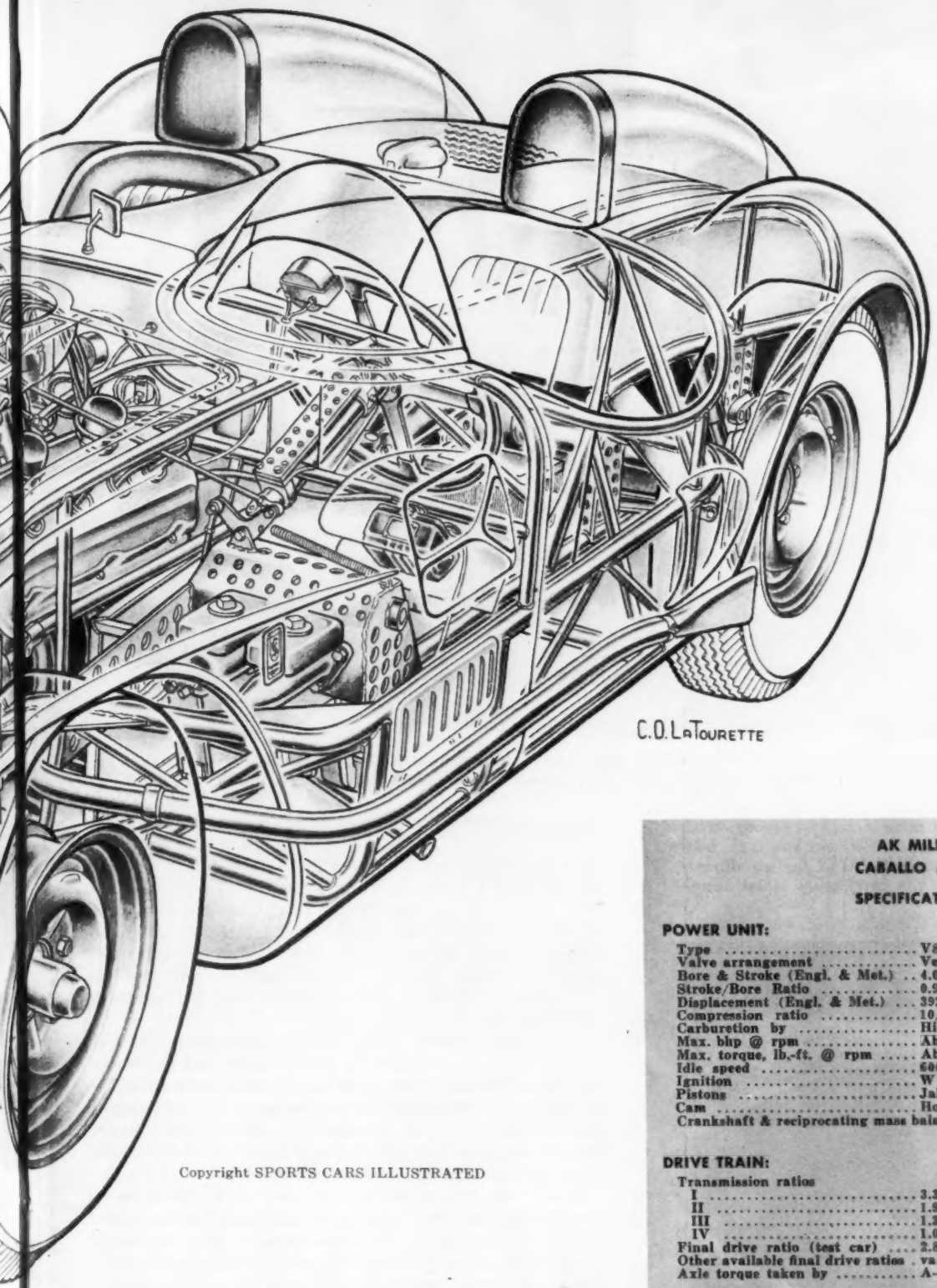
Winning smile of Ak Miller has long been feature of US lakes competition, will soon be seen abroad. Low cockpit side gives elbow room, but may cause wind fatigue.



Tail end best shows Sutton's interest in "transverse streamlining" for stability. Big vents exhaust hot air from differential.



CABALLO II - 180 mph at 5400 rpm



AK MILLER
CABALLO MK II

SPECIFICATIONS

POWER UNIT:

Type	V8
Valve arrangement	Vee inclined pushrod ohv
Bore & Stroke (Engl. & Met.)	4.0 x 3. 9 ins. (102 x 99 mm)
Stroke/Bore Ratio	0.975/1
Displacement (Engl. & Met.)	392 cu. ins. (6420 cc)
Compression ratio	10/1
Carburetion by	Hilborn Fuel Injection
Max. bhp @ rpm	About 400 @ 5400
Max. torque, lb.-ft. @ rpm	About 475 @ 2800
Idle speed	600 rpm
Ignition	W & H two-point, 4-lobe cam
Pistons	Jahns
Cam	Howard, 270° duration
Crankshaft & reciprocating mass balanced by C & T Automotive	

DRIVE TRAIN:

Transmission ratios	
I	3.38
II	1.98
III	1.37
IV	1.00
Final drive ratio (test car)	2.87
Other available final drive ratios	various
Axle torque taken by	A-frame torque yokes

CHASSIS:

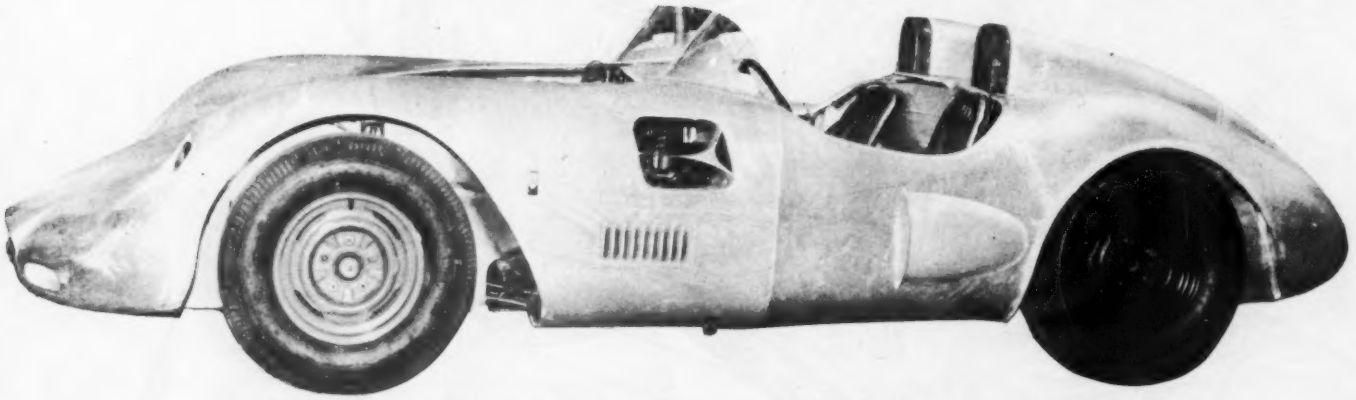
Wheelbase	96 ins.
Front tread	50 ins.
Rear tread	51 ins.
Suspension, front	Torsion bar
Suspension, rear	Torsion bar
Shock absorbers	Monroe tubular and Houdaille 50-50
Steering type	Ross cam and lever
Steering wheel turns L to L	2¾
Brake type	12 in. Lincoln drums; Chrysler center-plane internals
Brake lining area	251 sq. ins.
Tire size	8.00 x 15 rear/6.70 x 15 front

GENERAL:

Length	165 ins.
Height	36 ins. (43 ins. to top of headrest)
Weight	2100 wet
Fuel capacity, U.S. gallons	55

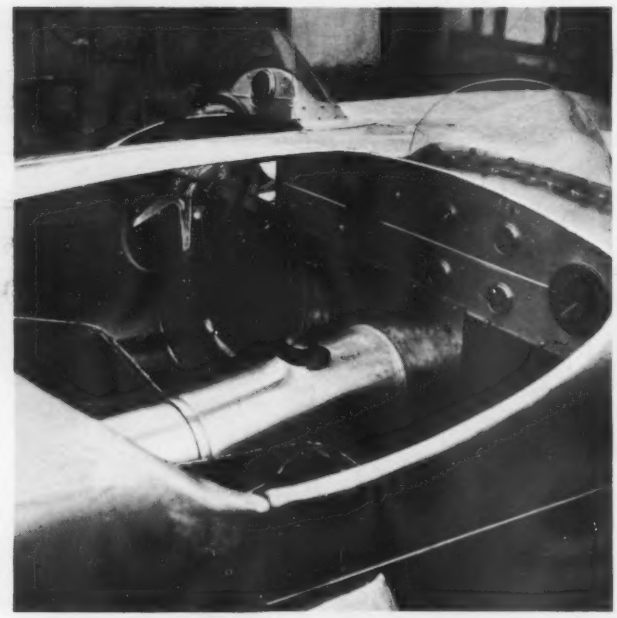
Louvered vent is for Miller's feet, can be set from inside. Above it is air extractor from engine room, and at rear is back brake duct.

Jack shows Ak how the silent wheel shapes aluminum without strain. Lower rollers are changed to get different curving rates.



Headrests are genuine roll bars, though the worst is definitely not expected. Outlet for exhaust pipe (left bank) is visible just behind front wheel — there will be more piping.

Functions are well divided in twin cockpit layout. Miller has solidly-mounted wheel and 6000 rpm Sun tach, while navigator Harrison has engine dials and Jag speedometer for route mileage checks. Jag shift lever is on tunnel.



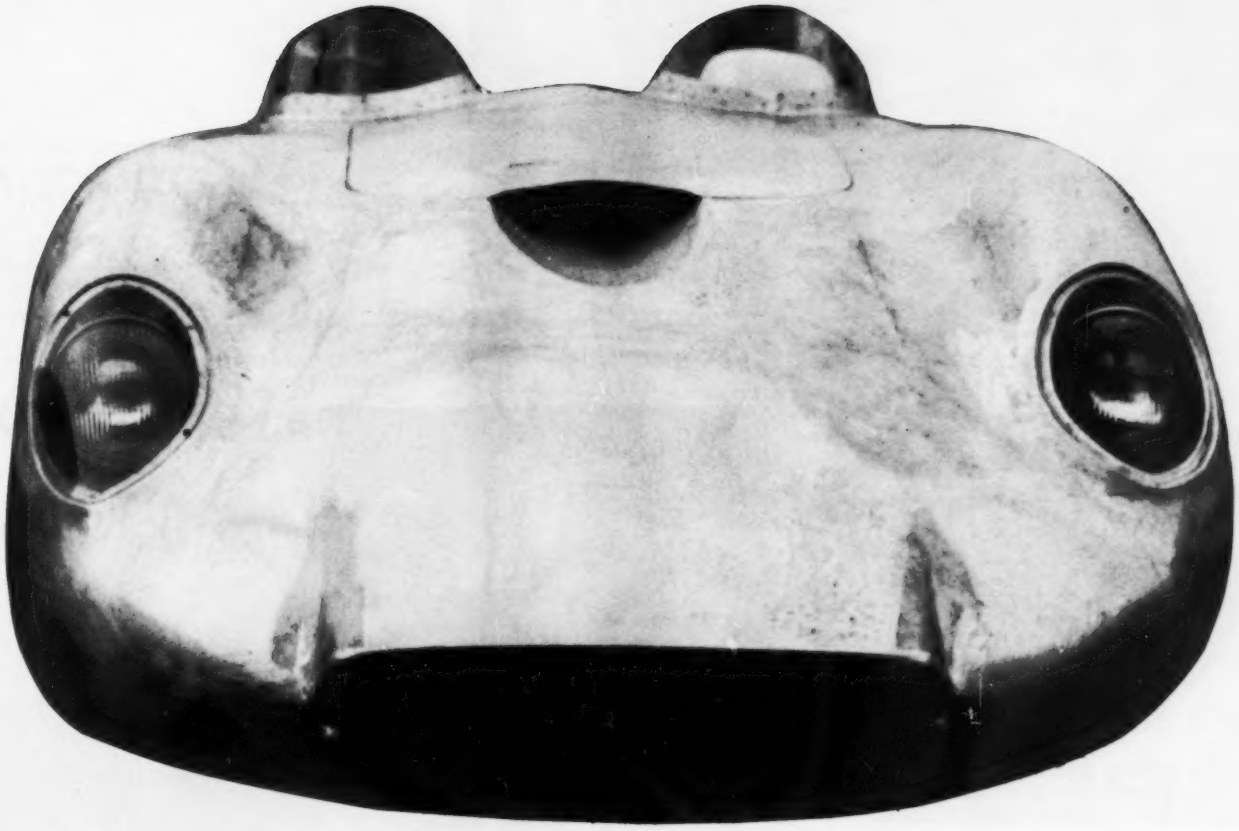
center it would deflect half an inch. This may be acceptable for closed-circuit racing but the punishment dealt by a race like the Panam is another matter and Miller had seen strong frames break in two in that 2000-mile event. So Miller doubled the lower frame tubes, giving a total cross-section of three inches. This caused all the bending moments to show up in the top tubes. Extensive gussetting of all the bends took care of that and left only the rear end springy. Enough ⅞ inch tubing was welded in to make this portion rigid.

Miller says, "We've got it to the point where you can whang away with 400 pounds in the center and not budge the frame at any point — it's all getting transmitted to the springs." These torsion bars can stand a lot of shocking and are getting it in the Caballo. At all four corners, hinged out near the wheels, is a Stude 50-50 Houdaille shock *and* a huge Monroe telescopic.

Front axle torque reaction is dealt with exactly as in the Murphy car by means of a trailing A-frame or yoke with center-line pivot. This has the advantage of distributing torque loads over half the axle instead of concentrating them at one end of the axle tube as in earlier Kurtis practice. At the Caballo's rear another A-frame links the final drive housing to the chassis frame for axle location and control of rear-axle torque.

Brakes, naturally, are of the greatest importance on a machine like this, as Miller has learned the hard way. His choice for the new car is a compromise between the advanced and the totally reliable. He uses 12-inch Lincoln drums because he's had much racing experience with them in the past and they've never showed signs of warping.

The innards are Chrysler 12-inch center-plane components, chosen because "their wear pattern is terrific — just a shade short of 100 per cent." To reduce pedal effort, without the weight and complexity of a vacuum booster setup,



Mean-looking as a barracuda, new Caballo looks eager to get out and move. Air for injectors is taken in far enough back on nose to avoid low pressure areas. Slanted snout should ensure pressure on front wheels.

a Micro-Lock double master cylinder has been installed; it gives a two-stage boost. Miller plans to machine the front brake drums on the outside and press on starter ring-gears to control drum expansion.

At this point he's undecided about drilling vent holes in the drums. Rain is a frequent hazard in the Mille-Miglia and with wet brakes you might as well drop out of the running, which many contestants, less brave than Dick Tracy, do. Miller probably will leave the drums undrilled, leave the backing plates off if the weather promises to be dry, and install them if it looks like rain.

The new Caballo's rear axle is a Lincoln assembly, selected because it performed fautlessly on the old car in its '54 Mexico form. A Thornton limited-slip differential (Stude-Packard type) is used. It has a great reputation in racing circles for reliability. The Spicer final drive gears are Packard 2.87's.

Wheels for this machine are stock 15 inch Lincoln with 8.00 tires at the rear and 6.70 at the front. Miller plans to run Firestone Super Sports. When first introduced these wore like iron but at the cost of adhesion. Now a softer tread compound is used. Miller has been offered racing tires of foreign make but prefers to make his play with all American equipment.

Power for the new Caballo comes from a 392 cubic inch Chrysler engine that has been modified only slightly, meaning that no liberties are being taken with the stock product's built-in reliability. Hilborn fuel injection is used and the hydraulic tappets have been replaced by solid ones with adjustable pushrods. Miller became disenchanted with magnetos many years ago and uses two-coil, 12 volt battery ignition. This gives 76 degrees of dwell as opposed to 32 degrees for a single coil and is a pretty foolproof setup.

The only other engine modification is a steel billet cam, chosen for good wearing qualities. Its characteristics are hardly what you might expect. It has very little overlap and it's timed to produce peak urge rather low down in the rpm range. It has a high lift rate, fast action. Miller explains his choice of tune: "I'm not kidding myself. The only way to keep these big engines together is not to try to buzz them over 5500, even though you do have a safety factor of 6000 rpm before valve bounce. Set up as we are, we're going to be developing close to 400 horsepower. With a ready-to-go weight of about 2100 pounds we'll have acceleration like we never began to have it in Mexico — that old car weighed 3100 and its engine pulled 250 hp. Geared as we are we'll be good for 180 mph at 5400 rpm . . . so why try to drag more out of the engine?"

The weight of the power train has been held down by liberal use of light alloy. The flywheel and housings are aluminum; the clutch pressure plate is hard-anodized aluminum. The clutch is an 11 inch Long centrifugal unit with spring pressure increased about 400 pounds over stock: Miller wants to take no chances on slipping that aluminum pressure plate. The transmission is a Moss box from a Mk VII Jaguar and is the most rugged-looking unit Miller has been able to find. Steering is by Ross cam and lever, which recently has found favor at Indianapolis. It has been speeded up to 2¾ turns from lock to lock by lengthening the pitman arm.

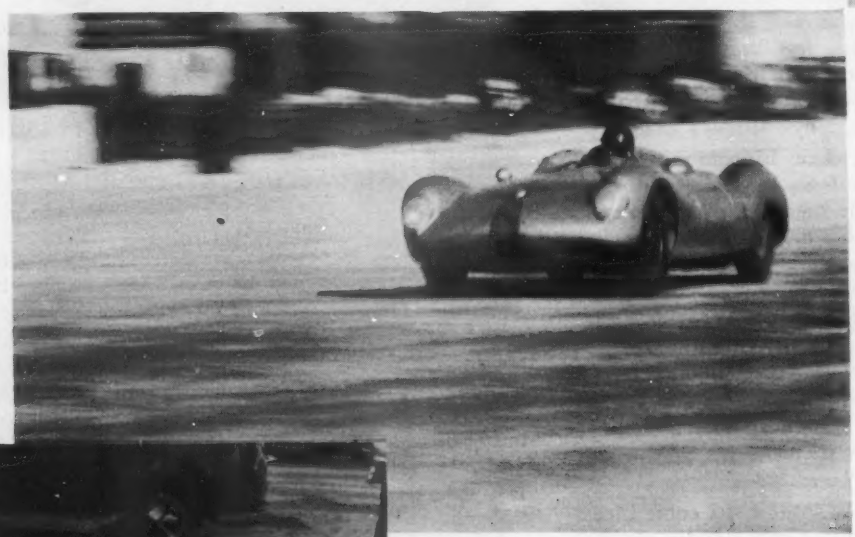
That, then, is the chassis Ak built. With spare wheel and battery it weighed 1700 lbs. It needed a body. For this Miller consulted Jack Sutton of Hollywood. Sutton came to this country just a few years ago from England, where for years he had built fine race-car bodies, including the panels for a couple of Land Speed Record holders. Sutton undertook the task of designing and fabricating a body for the new Caballo and the result merits a great deal of praise.

(Continued on page 63)

Portago gave Shelby much concern in the second half of the Governor's Cup Race until he mistook a dimly lighted, but running Austin-Healey to be a disabled car on the course. Deftly he rammed into it, allowing Shelby to cross the line first. Result of the maneuver is as upper left. At lower left he talks over race result with winner Shelby.

By DENISE McCLUGGAGE

SPEED WEEK at NASSAU

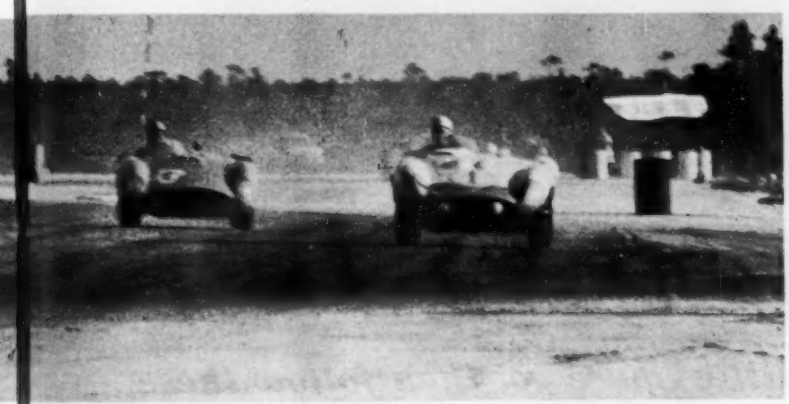


Ken Miles in Johnny Von Neumann's Pooper races to finish fourth in the Nassau Trophy Race after 59 gruelling laps. Miles lost the lap when forced to the pits early in the run. At lower left, Miles hacksaws top of windscreen to bring upper edge to eye-level or below.

Photos by Tom Burnside

With a tired, bent Maserati showing 33,000 miles on the meter, Stirling Moss and Bill Lloyd teamed up for an "impossible" win.

Stirling Moss relaxes with Bill Lloyd and a Coke after Sunday's big race. Moss drove Lloyd's 300S with very little contention from the opposition.



Phil Hill, Marquis de Portago, and herd. Hill finished third, de Portago, who had locking brake trouble, placed seventh.

AFTER the boat docked on the pastel shores of Nassau and disgorged its cargo of sports cars in preparation for the third annual Bahamas Speed Week, some of the drivers headed out to look at the course in their rented Morris Minors, and some headed for the beaches. There wasn't much difference at first glance. Much of the 3.5 miles of the fast Windsor Course had been re-surfaced during the year and loaded with sand. In spite of a rotary broom, a lot of it was still there. For that matter, what three days of racing didn't remove is there yet.

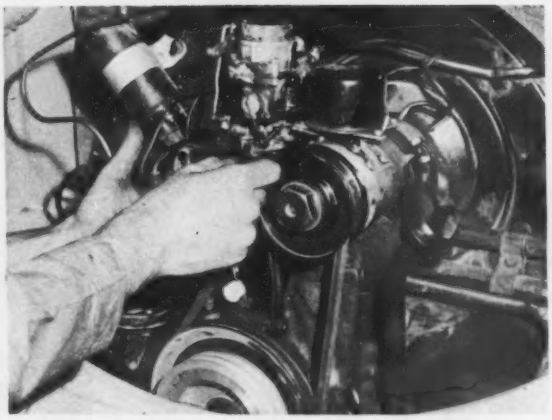
But it looked to be an interesting race meeting anyhow. The advance billing might lead one to believe that Sebring, Le Mans, the Targa Florio and the Mexican Road Race had been fused into one glorious event, but no one was really fooled by the publicity. It is not the international flavor of the race that entices the flood of entrants from all over the United States, rather it is the flavor of Planter's Punch. Conch fritters and the bright dazzle of tropical sun on incredibly clear water.

But whatever it was, there was no doubt it had brought the best the United States had to offer: Carroll Shelby (4.9 Ferrari) Phil Hill (3.5 Ferrari), Masten Gregory (Testa Rossa Ferrari), Ken Miles (Porsche-Cooper), etc. And it brought The Marquis Alfonso de Portago, the fast-rising young Spanish nobleman, in a 3.5 Ferrari. It also brought Britain's pride and joy, Stirling Moss, riding the crest of four straight Maserati-powered victories—Monza, Caracas, and two in Melbourne (one sports, one Formula I).

Shelby, who ran up a phenomenal string of American victories this season, was eager to do well by John Edgar's big 4.9. It was his chance to beat someone Europeans had heard of. Portago apparently felt a tremendous necessity to win and his tension brought comment from the drivers who knew his ways at other circuits. There was, of course, the possibility he might be beaten by someone Europeans had never heard of. Gregory, driving Temple Buell's 2-liter Ferrari, probably felt less pressure than anyone, and did far better than most. It was hard to say about Moss. It was his first time at Nassau driving anything that had any chance of winning. And no one taking a quick look at the beat-up Maser would have blamed him for any failure. The Maserati people had sold Moss' Caracas car out from under him and replaced it with an agreement to borrow Bill Lloyd's two-year-old 300S. When Moss arrived, he discovered that someone (who shall be forever nameless) in practicing for the ladies race had slipped the Maser's clutch into oblivion. A new one arrived the next morning from New York with mechanic Daniello attached. It was a fortunate combination.

The car was ready in time for practice although there was precious little of that. Just enough to discover that the tire combination was squirrelly. That was corrected only to have the car severely shunted in one of the three five-lap "observation" races on Friday. While that damage was being repaired in fine improvisatory manner (after all, Lloyd is the proprietor of the Southport Body Shop) some racing was going on. First of all, in the preliminary heats, Jay Chamberlain won one going like the very wind in a red Lotus. Joe Sheppard and Frank Baptista on similar mounts (Baptista's is a Monza model) fol-

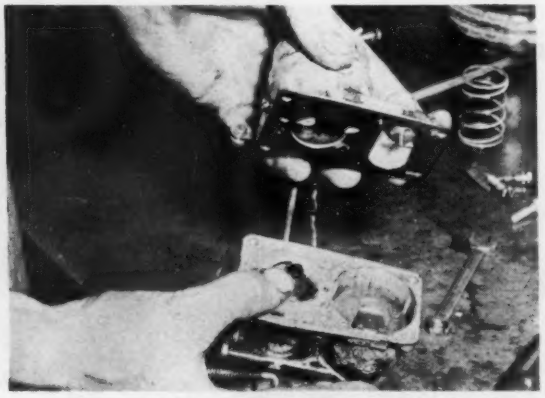
(Continued on page 66)



1 Remove carburetor for re-jetting, fuel pump for beefing up. Heat risers are then blocked off, and the voltage control unit on top of generator moved to make room for supercharger.

2 Special brackets support voltage regulator which is set upward and to the right of generator. No alterations are made to the distributor other than changing the points.

5 Before disassembling the carburetor for a change of jet size, attach simple slotted choke control bracket near the carburetor throttle valve shaft, underneath standard nut.



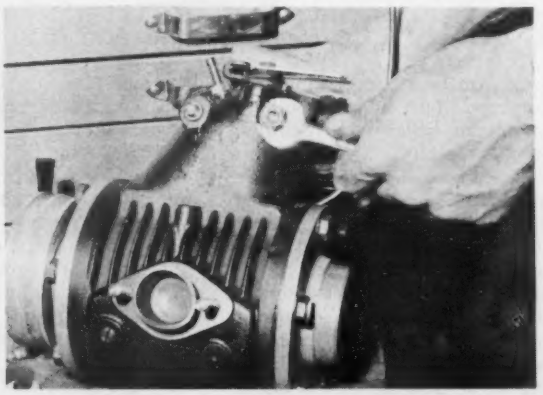
6 Removal of four screws permits the VW Solex carburetor to be pulled apart. There is no need to disconnect the choke rod as the only jet to be changed is readily accessible.

If you want to squeeze out a little more go, then follow these simple steps . . .

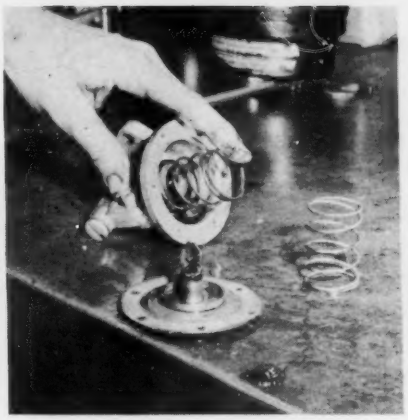
Pressurizing

9 Extra long studs are screwed into carburetor flange. A new gasket, covered on both sides with Permatex is dropped into place. This is a precaution against air leaks after assembly.

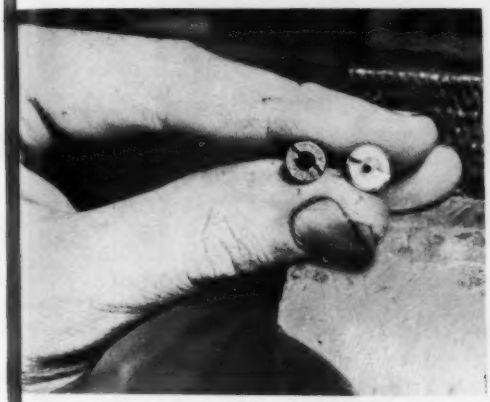
10 Longer studs on carburetor extend through intake manifold and are bolted on the out- and opposite side. Small copper gaskets are used under each self locking nut to seal leaks.



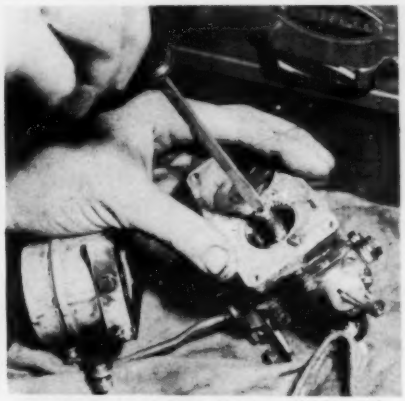
3 *Block carburetor heat riser by reaming out gasket with knife and inserting pennies in resulting hole. Blower creates own warmth.*



4 *Lightweight spring is replaced with stiffer coil. This insures maximum supply of fuel to the carb and eliminates too lean a mixture.*



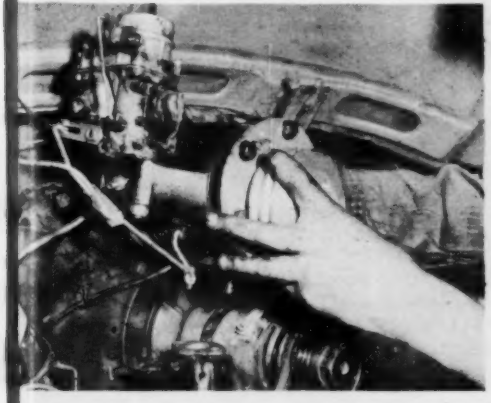
7 *Air correction jet which bleeds air to fuel as it enters venturi requires changing. Old jet size is 200 (left). New size is 160 (right).*



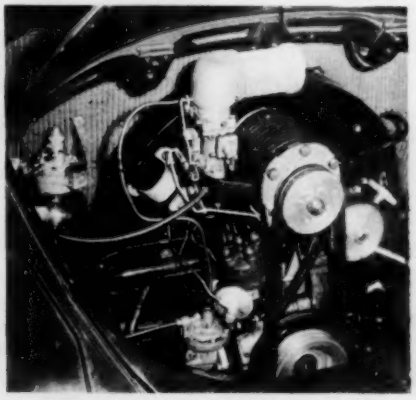
8 *Unscrew old jet and replace with air correction jet. At this stage be careful not to burr or score or mutilate with rounded screwdriver.*

Your

11 *Judson blower with carburetor is dropped over intake pipe. Supercharged VW's run best on the best grade Ethyl gasoline.*



12 *Completed installation looks like this. A drip type lubricator is attached to the firewall at the engine's left. Ready to burn rubber?*



By BILL CARROLL

PROBABLY the most popular single engine modification for VW's, and rightly so, is the installation of a supercharger. This has been a popular hop-up trick for several other makes since the war, ranging from Cadillacs through Fords to M.G.'s, but now everybody's tossing out the tools for these and going after the VW market. Problem with the aforementioned mills was that they were already hopped up to some extent, and didn't always respond in a big way to three hundred dollars worth of added air. The Wolfsburg wonders, though, are quite another story.

All the way through the VW induction system there are built-in obstacle courses for the fuel-air mixture, from the tiny valves and moderate timing to the cramped intake manifold. This is perfect for blowing, which can ride roughshod over these and provide a respectable pressure at the intake valve. As a matter of fact, though, the VW's restrictions are such that five pounds boost at the blower may dwindle to one or two pounds, at best, at the valves. The outputs of some commercial blowers may sound high for a touring engine, but on this car you need it.

The installation described here is one of the most popular, being the product of Judson Research and Manufacturing Company, Conshohocken 7, Pennsylvania. Kits are available, in the box or installed, at prices ranging from $160 to $175, making it one of the cheapest ways to power for the VW. The physical problems of bolting it in are described to the left, and shouldn't present many problems. Service durability of these units is very good, as they are very simply constructed.

The positive-displacement vane-type blower can be straightforward to start with, having no internal gearing problems, but the contact of vanes with the surrounding housing can be a sore spot. Charlie Judson has moderated this by using a very inexpensive composition vane which will wear itself in most cases instead of scoring the more costly housing. Under hard use these vanes may need replacement at around 10,000 miles, and the job is very cheap. For best results set drip lubricator to feed slightly more oil than recommended in Judson instructions. This is also good for the engine internals, when being pushed.

If you plan to go further with your VW engine, always try to keep compression ratio low and raise the blower pressure gently within the limits of the machinery. This would mean a slightly smaller blower pulley. Extreme racing cams are also not called for, a good road grind being more suitable. It's not a Porsche engine, but it's by far the next best thing.

The 219 Mercedes takes a hard, right, wet corner at somewhere around 35 mph. Car leaned but stuck fast.

MERCEDES 190 & 219

WHEN Daimler-Benz pulled in the reins on their sports and Formula I racing car program at the end of 1955, a great hue and cry went up from many sides, sincerely regretting this "strategic withdrawal" of the victorious "Silver Screamers" back to Untertürkheim. But today, if you visit the Mercedes museum at the factory and take a close look at the 300SLR that Moss and Jenkinson drove to make Mille Miglia history in that final Mercedes year, anyone with the faintest understanding of things mechanical can appreciate the effort involved in developing this automotive masterpiece, not to mention the amount of manpower it took to keep it and its big brother, the W196 GP car running and winning.

Moss tells how he visited the factory just prior to the Mille Miglia and when he entered the racing department, he was positively astounded at the number of mechanics swarming around the cars. Attempting to count the men, he reached 85 before forced to stop. Thus you get an idea of the degree of effort that Mercedes puts out when actively engaged in competition. Now all this manpower didn't just materialize out of thin air; they were pulled off other jobs in the passenger car development section and from numerous other research projects. In other words, the racing department took the cream off the top of the Stutt-

Shorter hood and 3 chrome strips in front show how the 190 differs from the 219 in outward appearance.

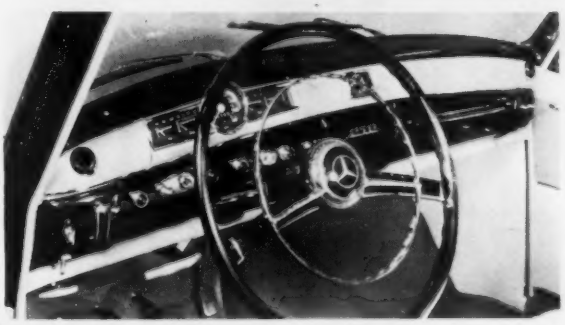
gart work force.

It was considered, of course, to be a privilege to be allowed to work in the "rennabteilung" and a 90 hour work week was not uncommon for many devoted men at the peak of the season. Design engineers like Uhlenhaut, Kosteletzky and Werner, spent every waking moment thinking about their silver charges and how to make them go better. Now all this effort was a good thing until it began to hurt actual passenger car development and by the time the end of '55 rolled around, Daimler-Benz top brass were beginning to look with a jaundiced eye upon this maximum effort. Feeling that the strain was just too much on the firm as a whole and with the LeMans disaster still in mind, active factory participation in world racing was brought to a halt following the Moss-Collins victory in the Targa Florio.

So the design boys came back down to earth and began to lick some of the problems facing Daimler-Benz in an international post-war automotive boom. Several of the lessons learned in the two years of racing were actually applied to new passenger cars, and we are just beginning to see some of these items today. A less expensive yet reasonably performing team of new cars was the goal and out of current production came two brand-new types. The first was the 219, literally a "baby 220", and the other, the new Type 190, or the long-awaited 180 with a detuned 190SL engine. These two new Mercedes passenger cars are basically so similar that it was decided to run them together in joint road test.

At first glance placed side by side the 190 and 219 look almost like twins. Actually there is only a very small exterior difference between the two automobiles. The 219 has a four-inch longer hood to accommodate the six cylinder ohc engine out of the 220—aside from this the 219 has the same dimensions as the 190. Identification points on the 190 are the three parallel chrome strips on either side of the radiator in front and the front fender-mounted turn indicators. But under the hood there's a big difference between these two "Mercs". If you were placed blindfolded in one of the two and then driven around the block,

Dash layout of this 190 is ostensibly the same as the 219. Discernible difference is the shorter hood and the speedometer calibration.



The clock of the 219, shown here, reads 180 kilometers while the 190 above reads 160. Driver has own glove compartment—useful for everything but gloves.

Driven hard through a bend, both cars have a pronounced initial understeer, which can turn to severe oversteer unless driver exerts care. It's best to set the machine in a drift by playing the wheel to provoke breakaway.

you would soon know which car you were in, for the six cylinder mill is considerably quieter than the four cylinder in the 190. To all intents and purposes, cruising speeds of both cars are the same; both will travel all day at 75 with the 219 taking 80 and 85 in its stride when conditions permit. Over 75, however, the 190 takes on all the characteristics of a four cylinder power plant. Highway cruising in both cars is an experience as their tracking ability is fantastic. The 219 is especially praiseworthy in this regard; it tracks as if it were running on a magnetized strip right down the center of the highway.

From the driver's seat there's no difference between the two; the dash layout is the same, only the slightly longer hood on the 219 stretches a bit farther out in front of you. You feel you are sitting higher in the 219 but actually overall height is the same between the two. The instruments are well laid out and easy to read, especially at night despite the fact that the horn ring passes directly through the driver's line of sight to the speedometer. The full com-

plement of instruments of course includes a manual spark and choke. A hand operated headlight blinker which when actuated begins to flash automatically after two seconds is standard on both machines. Leg room is exceptionally good as is interior storage space. The driver has his own private glove compartment just below the instrument cluster next to the steering column—most convenient for gloves or sun glasses.

Another impressive thing about both cars, as it is on any "Merc" is the weather equipment and sealing off of the interior and its occupants from outside weather. Rain never gets in and the ventilation system would be most adequate except under desert conditions when a rear mounted air conditioning unit would be useful. A blower to operate the defroster when the car is standing still is an additional "goodie" found on the 190. Plenty of leg room, adjustable seats and an optional sliding roof as well as excellently positioned door openers and window cranks add up to interior comfort that is second to none.

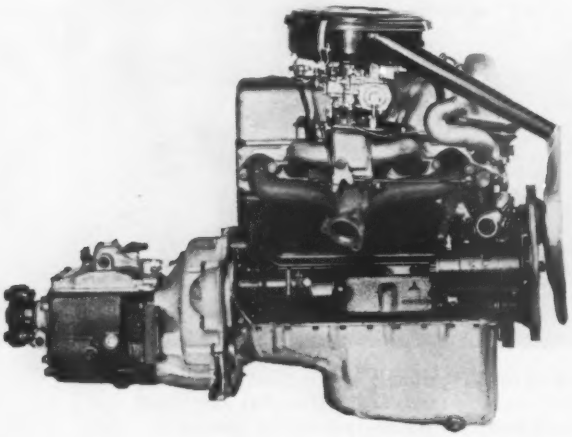
The ride of these two new Mercedes passenger cars is not terribly soft but lies in between a degree of firmness and softness that is obviously the right thing with the independent front suspension and the low pivot swing axle rear end. This latter bit is a direct descendant of that used on the W196 Grand Prix car and the 300SLR. Here is an outstanding example of a component part thoroughly tested and proven in racing before being used on production cars. How many automotive manufacturers can put this in their advertising copy? *(Let's hope Chevrolet can in the near future.—Ed.)*

Handling qualities of the two "Mercs" are quite similar; for some reason the 190 seems lighter on its feet than the 219, despite the fact that there is only 130 pounds difference between the two, you get the feeling that you can do more with the 190 than you can with the 219. The steering on the latter car has an uncomfortable spongy feel to it while the steering return is something terrific. The shift mechanism is good for a steering column actuated job; a standard "H" pattern, four speed, completely synchronized gear box is standard. First gear can be engaged with or without double clutching at speeds approaching 15 mph. Fast down shifts have got to be made with a double clutch otherwise the synchro mechanism demands a short pause between them. Again this goes for both cars as transmission layout is exactly the same. In the mountains the Mercedes gear box is a joy to use well for any one who likes to get the most out of his car.

The driving position on the two Mercedes is very satisfactory, for it's possible for drivers of medium and short stature to get the seat back far enough to allow the arms to be comfortably extended and yet still be close enough so that the clutch pedal can be fully depressed. High speed cornering is executed in a much cleaner fashion if the driver is well back from the wheel and can drive partly by "the seat of his pants" so to speak. Driven hard through a fast corner the 219 and 190 exhibit pronounced initial understeer. This changes to violent and unannounced oversteer if the driver is not on his toes. You have very little warning when the car is going to break loose and the best technique is that described above and to drift the machine by "tweaking" the wheel a bit to provoke controllable rear end breakaway.

As far as the brakes are concerned on these two four door sedans we had no complaints whatsoever despite a slight tendency for the right front shoe to grab a bit after 1200 miles had been put on the car. For emergency stops we found the best technique was a series of hard, short bursts on the brake pedal rather than just stomping on it and keeping the foot all the way to the floor until the car comes to rest. Front drums on the 219 are light metal Alfins, inherited from the 220, while cast iron models are found on the rear and all around on the 190. The

The 190 four banger carries same specs as 190 SL. Manifolding is de-tuned, intake equipped with one Solex instead of two.



With a weight to hp ratio of 31.6:1, the conservative 190 will never gain fame as a screamer, but its meticulous construction marks it a machine of quality.

Left to right: 219; 190; 220S. The only obvious difference between the 219 and the 220S is the fog lights. Major difference is in horsepower.

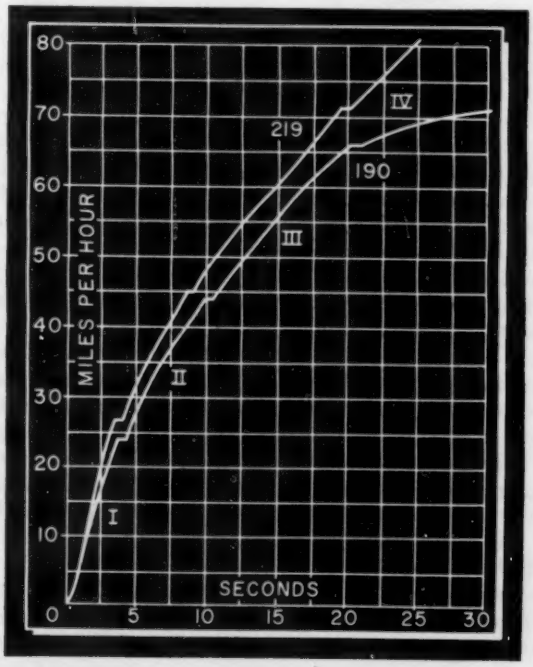
ATE servo assist is not standard on either car but is a strongly recommended accessory for the 219, a car that is going to be driven closer to the limit because of its extra beef under the hood.

Luggage space is very large on both cars. The trunk is huge by European standards, and is another by-product of the race-proven rear end. The lowered housing, in addition to providing a lower center of gravity and roll center, adds extra cubic inches to the trunk.

The power plant of the 219 is a rugged and economical six cylinder 133.9 cubic inch single overhead cam engine that develops 92 bhp at 4800 rpm. Torque is at its maximum at 2750 rpm with 115.7 pounds feet being recorded. The car can be lugged in 3rd and top gear to a large degree and then will pull up to cruising speed again without protest. The 219 engine is fitted with a Solex double choke downdraft carburetor. It is conceivable that the twin carburetor manifold from the 220S could be installed with a bit of improvisation on the 219. With this addition you would have a fairly terrific performing 4 door sedan considering the difference in weight – 160 pounds.

On the 190 we have a de-tuned 190SL four cylinder ohc job that puts out 84 bhp at 4800 as opposed to the SL's rating of 120 bhp at 5700. The four seems to be unbeatable in every respect despite the fact that when wound up tight the noise is a bit rugged. Engine accessibility is excellent on both cars with the additional advantage of being able to remove the engine and transmission by wheeling out the sub-frame which supports the engine and steering assembly.

As on all "Mercs" regard for detail is fabulous; the instruction books that comes with the car is a masterpiece in service manuals. The 219 and 190 sedans are both excellent automobile buys for the man who wants a family car made with jewel-like precision. The 219 is perhaps the best buy of all as it is at home on the long highways cruising at 80 as it is squeezing into a seemingly impossible parking space in the middle of a crowded city. Economy of operation and a vehicle that is something more than just transportation are other factors to be taken into consideration. But why is it that a down-right conservative 4 door sedan lacking the drama and neck-snapping acceleration of a red-hot-breathing-fire-and-smoke V-8 still has a place on the American automotive scene? It's because there is no substitute for Mercedes solidity of construction, respect for hand-finished quality, and top lacquering.



MERCEDES-BENZ 219 & 190

PERFORMANCE

TOP SPEED:	219	190
Two-way average	92 mph	85.7 mph
Fastest one-way run	92.5 mph	86 mph

ACCELERATION: From zero to	219	190
30 mph	4.6	5.3
40 mph	7.4	8.4
50 mph	10.4	12.8
60 mph	15.0	16.8
70 mph	19.2	27.0
80 mph	24.8	42.3

SPEED RANGES IN GEARS:	219	190
I	0-27 mph	0-24 mph
II	8-45 mph	18-44 mph
III	15-70 mph	20-66 mph
IV	15-92 mph	22-86 mph

SPEEDOMETER CORRECTION: Indicated	Actual 219	190
30	29.2	28.5
40	38.5	37.9
50	47.8	47.2
60	60.2	57.1
70	67.0	65.8
80	77.8	76.2
90	86.3	86.0

FUEL CONSUMPTION:	219	190
Hard driving	15.8	20.5
Average driving	24 mpg.	26.1

SPECIFICATIONS

POWER UNIT:	219	190
Type	In line 6	In line 4
Valve arrangement	ohc	ohc
Bore & Stroke (Engl. & Met.)	$3\frac{5}{32}$x$2\frac{3}{4}$ in. 80x72.8 mm	$3^{11}\frac{}{32}$x$3^{19}\frac{}{64}$ in. 85x83.6 mm
Stroke/Bore Ratio	1:.914	1:.984
Displacement (Engl. & Met.)	133.9 cu. in. 2195 cc	115.74 cu. in. 1897 cc
Compression ratio	7.6:1	7.5:1
Carburetion by	Solex 32 PAATJ double choke downdraft	Solex 32 PAJTA Compound downdraft
Max. bhp @ rpm	92 @ 4800	84 @ 4800
Max. torque, lb.-ft., @ rpm	115.7 @ 2750	N.A.
Idle speed	600 rpm	600 rpm

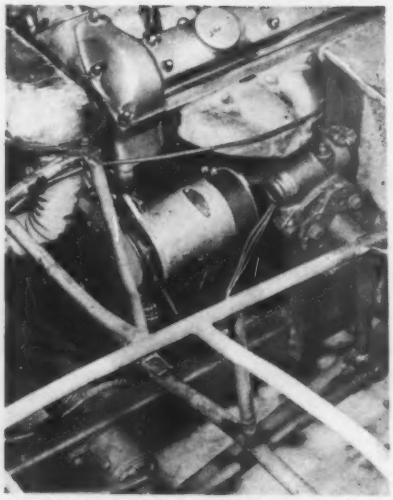
DRIVE TRAIN:	219	190
Transmission ratios I	3.52:1	4.05:1
II	2.32:1	2.38:1
III	1.52:1	1.53:1
IV	1:1	1:1
Final drive ratio	4.1	4.1
Axle torque taken by	Frame-mounted final drive	

CHASSIS:	219	190
Wheelbase	108¼ in.	104⅜
Front Tread	56¼	56¼
Rear Tread	57⅞	57⅞
Suspension, front	Triangular wishbones, coil springs with rubber pads	
Suspension, rear	Single joint swing axle, coil springs	
Shock absorbers	Hydraulic telescopic	
Steering type	D-B recirculating ball with shock absorber	
Steering wheel turns L to L	4.5	4.5
Turning diameter	36 feet	35 feet
Brake type	Hydraulic fr- Alfin drums, rear cast iron with turbo cooling	Hydraulic-drums cast iron with turbo cooling
Brake lining area	165 sq. in.	126 sq. in.
Tire size	6.40-13	6.40-13

GENERAL:	219	190
Length	182-11/16	176-9/16
Width	68½	68½
Height	61-7/16	61-7/16
Weight (test cars)	2780 lbs.	2650 lbs.
Fuel Capacity U. S. gallons	14.8	14.8

RATING FACTORS:	219	190
Bhp per cu. in.	.688	.727
Bhp per sq. in. piston area	1.95	2.49
Torque (lb-ft) per cu. in.	0.865	NA
Pounds per bhp—test car	30.2	31.5
Piston speed @ 60 mph	1910 fpm	1910 fpm
Piston speed @ max bhp	2300 fpm	2630 fpm
Brake lining area per ton (test car)	119 sq. in.	95 sq. in.

Roadable Rail Job



Mating of Jag, rail and Ford is clear here. Several Chev Gemmer models went into steering gear. Tubing supports body, also header tank.

Yes, it's a sports car, and yes, it's a hot rod. Tom Fox is wheeling the rail to second in C Modified at '56 Seafair.

By ROBERT LEE BEHME

BY RACE TIME the sun was warm and clear over the track where Seattle's Seafair sports car races were being run and the huge crowd was excited and enthusiastic. In the background the high snow-capped peak of Mount Ranier glistened against the clear blue sky but the action on the track demanded the full focus of attention.

When number 90, a large foreign looking car swept around the last turn into the home straight its huge rear tires screamed against the asphalt and its high pitched engine whined as the rpm's roared up to engine limit. The crowd broke wild. They were rooting for the odd-looking beast—a home-built product running in C-modified. Their confidence was well placed for the machine was second only to highly-touted Carroll Shelby.

As the car screamed past the straight and lunged into the first turn, then scooted out, the spectators got another good look at its design. The small oval nose, very much like a Maserati or a Ferrari, and the high fenders with the low slung cockpit gave the car an imported look. But the wheels, small in front and big and ugly in the rear, had the unmistakeable look of a hot rod.

The car *is* a hot rod: born and bred through a series of flathead Fords to its present winning form with a hot Jaguar mill. Built by Bremerton, Washington's Tom Fox, the car, called the "Poguar", is a careful mating of home-grown Ford parts and more nervous English components. All have been mixed judiciously in the mill of rodding experience.

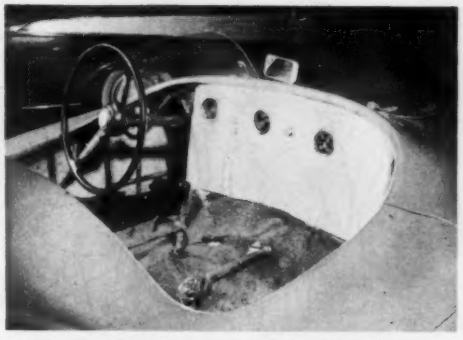
Tom Fox, a mechanic by trade, built the original car late in 1954 for racing in local sports car events. Falling back on previous rodding experience he built the frame and running gear straight out of the rail-and-flathead school of thought. He installed the first of four flatheads with the hope of bringing home sports car trophies.

"We ran the car this way in the 1955 Seafair," Fox said, "but during the season we didn't have a chance. The flatheads seemed to be bad luck. No matter what we did, and we did plenty, they wouldn't last like the equipment from across the pond. When the fourth one fell apart, I decided the only answer was another kind of mill."

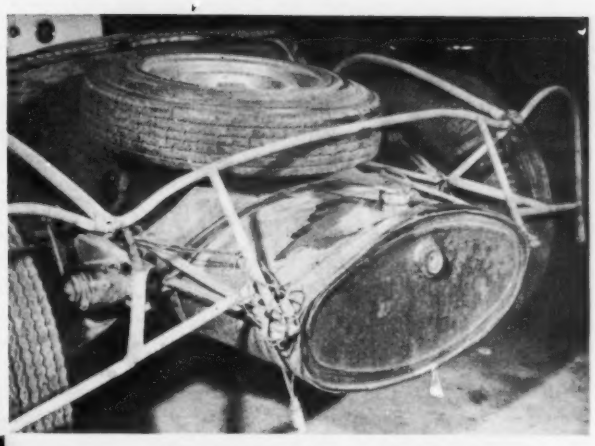
Tom heard of a used '51 Jaguar engine for sale in Seattle. He made the hour boat trip across Puget Sound to bargain.

Combining Pure Jaguar and Mixed Ford

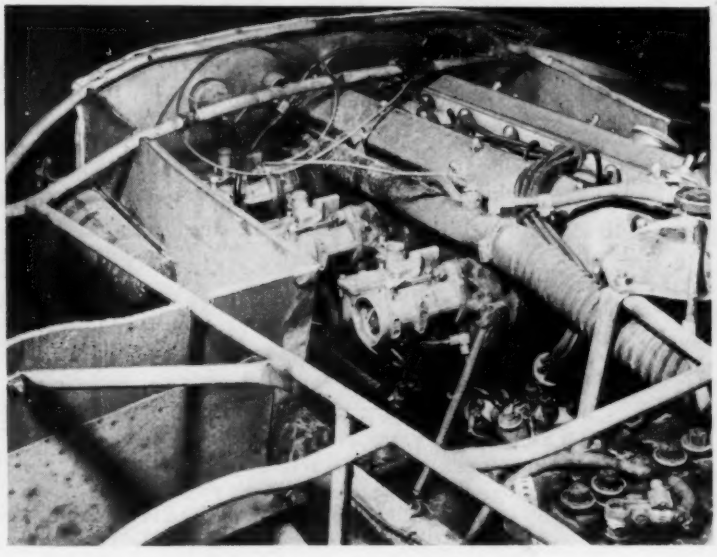
Has Created A Winner In The Northwest.



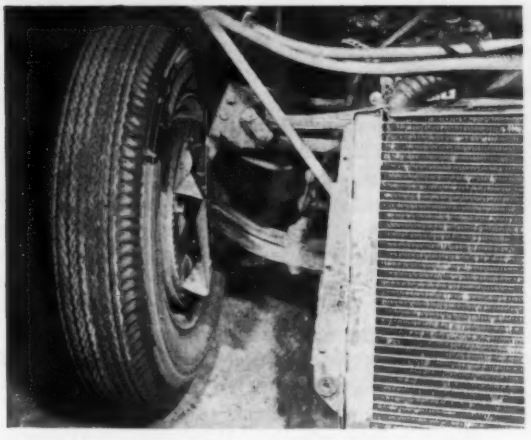
Fox prefers "flat out" driving position, has eliminated seats from cockpit. Shift linkage actuates Jag remote control.



Low rear tank, bought as is, seems to have come from Ford tractor. Spare wheel and transverse leaf are bolted to crossmember, and shocks are Houdaille.



Jag engine is set well back, allows forward battery placing. 3 sidedraft Carter carbs mount on special manifold boxes, requiring big fabricated water gallery.



Cross-spring front is in best rail tradition, king pin assemblies having been built by Fox. Radiator is Nash Ambassador, brakes vented.

After a drawn series of negotiations he bought the Jag engine for $400 with transmission and a set of Lincoln brakes thrown in. The equipment was carted across the Sound and the cross breeding began.

He stripped the chassis and revised much of its layout. The frame, which was basically a modified rail job, was altered slightly with bent-up channel sections. The wheel base was 100 inches. Tread was kept at 54 inches. Tom installed the Lincoln brakes in the rear to allow use of larger rubber. Up front he kept the stock Ford wheels and the straight axle. Ford brakes were used.

Front suspension is a mating of Ford and hot rod. The transverse spring is stiff and sure. Axle and spindles are stock Ford. To improve wheel action and handling Tom built special kingpins.

The rear end is stock Ford with Model A springing and an open drive shaft. The rear end itself has been built from a series of Ford parts. The housing is from a 1934 Ford Pickup. The center section is from a '40 Ford and ring and pinion are from a '46 Ford Pickup.

The drive shaft goes forward to the Jag gear box. Changes here were at a minimum. Tom machined the Jag output shaft to fit the Ford rear U-joint. He found that Ford splines were of the same basic size and number as the Jag and work was quick and easy.

Tom wanted the Jaguar engine as far aft as possible for best handling and balance. After a series of calculations it was found that the engine should be placed as far aft as the

(Continued on page 53)

HOW TEMPORARY WAS MY TRIUMPH

It doesn't fit the damn garage!

By CARL KOHLER

I HAVE always regarded sports cars with a fond and wistful eye and I think it was the morning my neighbor blew an emotional gasket that I decided my next car would *be* a sports car.

There I was, making with the Saturday morning gardening bit and separating the thick, hearty weeds from the thin, puny ones when I heard strangled sounds of rage drifting over from next door. Always one to assist a neighbor, I scuttled over to enjoy the sight: this outsized character had continually made undue sport of my faithful old '51 Ford and constantly bragged about the new car he was buying.

He was doing a little dance and making with the choke-music in front of his garage. Inside the garage sat a shiny, chrome-loaded 1957 sedan. It was a truly gorgeous thing—if you like your monstrosities on wheels. The general effect was that of a Mack Truck which had been hammered to within five feet of the soil, lathered with chrome, fitted with fins and buffed to a high gleam.

"Nice," I lied politely. "Why are you allowing this prize to infuriate you, neighbor? I understood life was a bleak existence until you could park this darb in your own garage?"

"It doesn't fit the damn garage!" he snarled, some of the purple in his mottled face fading to a mere violet. "Look at that rear-bumper! It extends four inches beyond the door!"

"Tsk, tsk," I sympathized. "How about removing the workbench at the rear wall?"

"Can't," he despaired quietly. "It's part of the wall! I'll have to rebuild the whole garage!"

Thoughtfully, I returned to my assault upon the weeds—eying my garage. It was time to get a new car, but I had no enthusiasm for constructing a building to fit it. Not, I thought, when there are cars for sale that will fit beautifully and still leave room for a ping-pong table!

That's when I put Plan A into immediate action. I had long ago schemed up Plan A. I have a wife. She is a woman. Most women do not acclimate to new ideas. You've got to make a new idea sound not only intriguing, practical, dramatic and flattering to them—you've also got to make it a soul-shattering necessity. At least, you do if you're married to my wife—which I am. So I know what I'm scheming about.

Plan A consisted of sneaking into the garage, quietly raising the Ford's hood, skillfully yanking the hell out of the wiring and then patiently waiting. It didn't take long. I had hardly gotten a bent knee among the weeds when the wife—dressed to the teeth and back—high-heeled it out the front door.

"Going shopping," she muttered briskly and disappeared into the garage.

I bruised a few weeds, smiling confidently.

Minutes passed.

Back she came with a look of disgust. I raised an innocent face of inquiry, my blue eyes wide with the best simulated wonderment amateur acting ever produced.

"Darn that car! It's dead again!" she wailed.

"Well, then," I said smoothly, "let's bury it, shall we? We can't have a car we can't depend upon. That heap's had its day—time to get something new in the old garage, eh?" I winked roguishly and dug her in the ribs. "Wanna know something?"

"W-What?"

"We need a nice little sports car!" I told her. "A car that is both attractive and economical! A car a girl can park." I watched her closely for reaction. "I know where they sell superb cars—cars that delight the eye, the body and the monthly gas bill!"

"I d-don't know," she murmured hesitantly. "T-They look so peculiar. And I refuse to be laughed at simply because we bought a —"

"Smart!" I beamed gaily. "That's what they are—smart! Those sophisticated chassis with their ultra-casual interiors! Those continental lines! Those colors! How could we *possibly* go wrong with a sports car? Let's window-shop a few, anyway, eh?"

Half-way down to the foreign-car dealer's, she squirmed in her seat and regarded me with suspicion. "How come the Ford started so easily for you?"

"Luck," I mumbled, avoiding her eyes.

Plan A: skillfully yanking the hell out of the wiring.

At the dealer's there was everything from low-slung Jaguars to tiny, unique Porsches. The showroom glistened with Arnolt-Bristol Bolides . . . Triumphs . . . Simcas and Volvos. It sparkled with Volkswagens . . . MGs . . . Hillman Minxes . . . Metros and Citroëns. There seemed to be acres of small, gleaming cars—each one a magnificent tribute to man's design and engineering ability; all of them a chant to better driving. We entered in slack-jawed awe.

"My God," I whispered hoarsely, casing the rows and rows of cars, "this guy must be the Franchise King of Southern California! He's got everything in here but a Roman Chariot!"

"Says you," hissed goodwife Kohler, jerking a well-formed thumb in the direction of a display stand. It featured a genuine, restored Roman Chariot . . . strictly for flash. A sign proclaimed: *Ancient Roamin' Chariot—We Take Any Kind Of Trade-Ins.*

Just then, a dapper gentleman approached us. He bowed, kissed my wife's hand, bowed again and was puckering up to buss my knuckles when I stopped him.

"Hold it, right there, Mac!" I balanced the threat in my voice with a tight, business-like smile. "We're in the market for a good sports car."

"But certainly!" he crooned. "We have every car for the personality, the taste! Perhaps you desire the sleek charm of the Borgward Isabella? The stunning comfort of the Americain Thunderbird?"

"Say," I demanded, peering hard into his well-bred map. "Don't I know you from somewhere? Didn't you once sell secondhand Whippets over in Pasadena, chum?"

"Mais, no, monsieur!" he chuckled. "You've got me, Pierre McWindscreen, in the confusion with some other goniff! Paris, yes; Pasadena, no!" He let loose with another fat chuckle but I saw his eyes sharpen warily.

"Sit pretty over there by the TV and let 'em serve you coffee, honeybun," I whispered to the wife. "I'll pick a car and haggle with this character." I sauntered into the jungle of sports cars, Monsieur McWindscreen tagging behind me—gesticulating and talking up a storm.

It was a tough decision to make, but I was just getting to terms on a swell MG when the wife appeared with a *well-that's-that* expression settling on her face.

"We can take off," she informed me. "I've picked a car. Sign the papers, will you, boy?"

She led the way to a metallic-green Triumph. A nice enough car, but I wondered why she had suddenly decided to choose it. I asked.

"It's the only thing in here that matches that new green suit," she said coolly.

"You ain't got no new green suit."

"I will have—after we leave here." She smiled the quietly fierce smile of the determined wife. "If you can splurge on sports cars, I guess I can have a suit to go with it."

Realizing that this might be my only opportunity to get a sports car, I refused to argue further. Without mentioning her lousy tactics, I settled the paperwork and we found ourselves tooling down the street in our new Triumph. It was quite a feeling. I imagine conquering kings have experienced it; a mild sensation of intoxicating glee similar to that of finding a forgotten twenty-dollar bill in an old jacket-pocket three days prior to pay-day.

Life took on a happy gloss. I was a celebrity everywhere I went and everywhere I parked. People craned their admiring heads as I passed them. Others gawked enviously when I stopped at signals. For a month, I really lived. Curvy beauties standing at bus-stops whistled at *me,* for a change. The guy down the block from my house, who owns a red Jaguar and who, previously, treated me like thin air whenever I expressed appreciation for his car, began halloo-ing at me like a blood brother everytime I scooted past his place. Yes, that little green Triumph certainly wrought fabulous changes in my life.

Even the blowhard next door braked his flappy lip after I quoted mileage costs to him. In fact, several weeks later I wasn't particularly astonished to see a tasty, blue MG sitting where his gookery-buggy used to sit.

(Continued on page 65)

Ridiculous! I've adored my Triumph since you bought it.

Indestructible Dixon

(Continued from page 15)

His choice of a nerve restorer typified the perverse streak in his nature. Hating airplanes ("The bloody things might fall down", he used to say) he went flying for the first time in his life. The flight achieved a momentum and altitude that was just sufficient to ensure the machine's total destruction and its occupants a severe roughing up when it nosedived into the ground a moment after takeoff. For the second time in seven months, Fred lay unconscious for ten days. The fuel tank, mounted high up, had torn away from its moorings and crashed down on his head. Also it had split open and bathed his insensible person in gasoline. There didn't seem to be any reason why the wreckage hadn't caught fire. It just hadn't, that's all.

As a conjurer of reliable, economical power from small unsupercharged engines, Dixon was, in his day, positively without rivals. His knowledge was entirely self-taught. His education, which was of the elementary sort that comes free in Britain, had ended in his thirteenth year. After that age, and presumably before it, I doubt whether, apart from technical works, he ever read what would be considered an intelligent book, and probably not a dozen books of any sort. His accent was gutteral north-country, only halfway intelligible to fastidious southerners, and he never sounded an *h* or a *g* in his life. Yet within a year of breaking into car racing he was getting come-hithers from automobile manufacturers in an important way of business. As a born freelancer he always refused these baits, recalling with wry amusement that prior to forming his attachment to Riley products, he had gone a-wooing around Britain's car industry, but in vain.

In a Dixon profile published in 1955 by *Motor Racing*, an English organ of speed sport, I seived the ingredients of Fred's genius. As nobody contradicted that analysis, and *M.R.'s* affable editors don't object, we will repeat it here. Mainly, he owed his success to:—

Plain, straightforward engineering knowledge and experience.

An unusual capacity for sustained and concentrated thought, and a refusal to sidestep a problem until he had it ten tenths licked.

An ability to see the job in terms of first principles.

A gift for orderly progression in applying his ideas, which he committed to paper before something else cropped up to crowd them out of his mind.

Disinclination to accept a practice or precedent on the mere grounds that that was how it'd always been done in the best circles.

An unfailing turning to account of his failures and setbacks. Why did this or that happen? What was the lesson behind it?

Many years before he turned to cars, Dixon was among the pioneers of one carburetor per cylinder on motorcycle engines, and he applied the same system to every full race Riley he built, fours and sixes both. In fact it is probable that his larger Rileys were the first sixes to be rigged this way, certainly on the east of the ocean. For all tuning purposes he regarded each cylinder as a separate engine, testing it individually on the brake and persevering until all outputs were precisely equal right along the firing line.

His carburetors were SUs by parentage but radically modified; the main difference consisted of using a single sliding plate throttle, (as featured currently on the D-Jag with fuel injection), giving an absolutely unobstructed gas passage and mathematically matched opening and closure. The carb bodies themselves were bolted permanently to a heavy distortion-proof mounting plate, adjacent pairs sharing a common float chamber. At a date when the behaviour and condition of precarbureted air was a matter of apparent indifference to his rivals, Dixon had his SUs' intake mouths coupled to a sheet rubber respiratory chamber of calculated shape and capacity, ensuring a cool, plentiful and stable air supply.

As a result of these and other carburetion measures, together with hairsplitting exactitude in valve and spark timing, the Dixon Rileys not only outpowered all challengers of like displacement but set new standards of tractability and low gas consumption.

Fred was contemptuous of what used to be known as "sprint tune". So far as his Rileys were concerned, the phrase was meaningless: apart from axle ratios, he ran them in one and the same state of tune in all events on his schedule, meaning everything from the 500 down to a thousand-yard hillclimb. Also, except when policy made it necessary to hornswoggle the handicappers at Brooklands, he invariably drove flatout from start to finish of any race or record bid, no matter what its duration. If an engine wouldn't stand this treatment, he argued, it was time to find another that would.

Incidentally, in choosing to race the Riley six he acted against the advice of Victor Riley himself, head of the plant bearing his name. This mill had never been designed for speedwork in any case, and had in fact proved a flop in the few halfhearted attempts that Riley had made to whip a racing performance out of it. So far as the camshafts, pistons, manifolds, conrods and carburetors were concerned, Dixon concurred in the makers' gloomy estimate of the design (for these components, he designed and made replacements), but he nevertheless insisted that what was left had some germ of merit. And how right he was.

As recalled in a recent SCI article, *The Try-Anything-Once Riley*, Dixon pioneered the lowdown, horizontal air entry slot that is now a frontal feature of practically every racing car in the world. He came up with that one as far back as 1932, causing consternation among traditionalists who asserted that the proper place for a radiator was out in the climate, untrammeled with tinwork. It wasn't until six years later, when Daimler-Benz followed this lead on their Grand Prix cars, that the clicking tongues were stilled.

As well as drastically restricting the airflow to his radiators (notably on the four-cylinder racers), Fred broke away from another fallacious practice of the 30s by omitting all louvers and other breachings from the top and sides of the hood. This was expressly done for two reasons, first, to maintain an abnormally high air temperature around the cylinder head and upper part of the block, with provedly beneficial results, second, to direct the outgoing draft down around the crankcase walls, which louver exits would have enabled it to bypass.

That Dixon practiced what he preached apropos "sprint tune" was strikingly shown by the fact that at Brooklands he won his 130 mph lap speed badge in the 500, of all races. Ultimately he turned a lap on the 2 liter Riley at nearly 135, less than 10 an hour slower than John Cobb's *libre* record on the 21 liter Napier Railton. The Railton and the Riley were the only cars to win two 500s each. In the 1935 marathon, before Fred's Riley cracked up during co-driver Walter Handley's spell at the wheel, Dixon himself had turned a faster lap than any recorded that day by Cobb's mighty bolide, which finally won at 121.28 miles per hour.

Fred's devices for ducking around irksome regulations were always good for laughs. To give himself enough thigh clearance in the pintsize cockpit of his 1100 cc track race Riley, he sawed out the bottom arc of the steering wheel. It was then pointed out to him that the rules demanded steering wheels with a continuous periphery. It was that word periphery (they hadn't said circumference) that gave him out. At the following meet he showed up with a wheel the same shape as before but with the void bridged in with a straight bar. If the old one hadn't been safe, nor was this one, but it was technically unexceptionable.

His first car race of all, the 1932 T.T., brought out the sealawyer in Fred. The T.T. being for sports cars, the carrying of a spare wheel was compulsory. Nonstandard bodies, on the other hand, were allowable, and the shell that Dixon planned was to be inches smaller than Riley's regular body in every dimension—so small in fact that there just wasn't room for a normal spare wheel in any undercover position; he didn't want to mount the thing outboard because it would increase weight and spoil the good areodynamic shape of the tail. His answer to this riddle was to buy an Austin Seven wheel at the junkyard and stow it with the tire deflated. That way, it just went in. The rules, as he blandly reminded the furious strutineer, didn't say the spare had to be of a size and make that would *fit* the car, or that the tire must be pressurized. Himself, he had nothing to lose—a flat during the race would have killed his chances anyway.

Back when he was racing motorcycles he adopted a handlebar windshield as a substitute for goggles. Like everything else he did, there was a reason for it. Snaefe' Mountain, highpoint of a bike T.T. circuit in the Isle of Man, was often capped in mist. In bad visibility he could take a succession of quick peeks out from behind his shield, whereas goggles were either up or down. Also, of course, raising and lowering them involved taking a hand off the

bars at perhaps 100 per hour. After awhile, however, somebody remembered that the regulations said goggles must be worn. So Dixon bought himself a pair and took the lenses out. Nobody noticed.

Of less than average height, he had broad shoulders and the muscles of a prize-fighter. Around the tracks in his Riley days a favorite sideshow was watching him hoist a corner of the 2 liter car bodily into the air and hold it there, six or seven inches off the ground, while mechanics attended to some wheel or axle chore. During workouts in preparation for his 100 mph Brooklands lap record with a cycle and sidecar, the outboard wheel came off at around the century. Before the unsupported weight had time to hit the ground (it included a very frightened passenger who'd never ridden at race speeds before) he forced the machine over to an angle of lean where the sidecar was poised in precarious equilibrium three feet above the concrete. Holding it that way, he completed the lap without cutting the throttle.

By divers methods, including substituting Elektron metal for many ferrous parts, Dixon trimmed the weight of his Riley sizes to levels that no track car of comparable lap speed had ever approached. This unique weight/speed ratio forced him onto a high-up strip of the bankings that had hitherto been considered the exclusive preserve of outsizers like Cobb's Napier Railton and Oliver Bertram's 8 liter Barnato Hassan. These encroachments repeatedly put him in wrong with the stewards, a panel with a predominantly elderly and stuffed shirt membership. Fred's reaction to the ensuing reprimands and warnings was characteristic. If any steward thought he could get the bloody thing around at 130-plus *without* using the high slopes, he was welcome to bloody well try.

Another time, after winning a race on one of the Brooklands road circuits, he incurred official wrath by ignoring the check flag and making several extra laps on an otherwise empty track. The stewards thought this was just another example of his incurable propensity for horsing, and really let him have it. For once he gave them no back answers, maintaining what they probably considered an insolent silence. Years afterwards he told me the reason for this spree. The race was his first after being released from hospital following his flying accident. The blow on the head from the plane's fuel tank had affected his eye muscles in a peculiar way. If he looked to right or left, it was only by a painful, slow-motion effort that he could focus straight ahead again. Oculists were consulted—and told him they couldn't do a thing to help. Not being prepared to quit speedwork at the height of a lucrative career, he decided to drive an experimental race with his eyes trained along the centerline of the hood from start to finish. The effort was so successful that he simply didn't see the man with the flag, and remained unaware of his paroxisms until the fellow almost threw himself into the Riley's path.

Luckily for the blood pressure of Brooklands officialdom, there was a Royal Automobile Club rule providing for the automatic withdrawal of a man's racing ticket if

(Continued on page 52)

(Continued from page 51)

the law took his operator's licence away. And this the law eventually did, for the rest of Dixon's days, following a highway contretemps in which he asserted his well known individualism by socking a copper on the jaw. Just for that, in addition to having the open road closed to him, he did a spell in jail, putting the stretch to a constructive use by livening up the carburetion of the prison cars. He also got permission to have draftsman's materials sent in and went to work designing one of the most remarkable automobiles ever conceived for the Land Speed Record. He called it the *Dart*, which is exactly what it looked like on paper. It was to weigh not much more than 3000 pounds and had a planned speed of over 400 mph (this was about twelve years before the late John Cobb set the 394.19 mph record that is still unbeaten today). The 10 liter engine, which Dixon personally designed in detail, during and after his detention, was of wobbleplate type and had the outward appearance of a toothpaste tube; its cross-sectional diameter, speaking from memory, was somewhere around 14 inches. The car was never built.

This was Fred's second abortive Land Speed Record project. Earlier, he had bought and experimented with the *Silver Bullet*, a 1200 horsepower jinx built originally for an L.S.R. bid by Kaye Don. Dixon finally decided that if the *Bullet's* transmission broke up, as it was apparently liable to, it would certainly castrate the driver and probably divide him geometrically down the middle. He therefore sold the car for scrap.

For sheer audacity as an engineering concept, the *Dart* was perhaps only equalled by the *Crab*, a vehicle that Fred designed and built during WW2 and afterwards developed over a period of years. In the prototype form in which I was once privileged to take a ride, it featured, *inter alia*, four wheel drive, all independent suspension, a single brake on the transmission, and, most heterodox of all, centerpoint steering, like a kid's soapbox car. There were other variants that went further still, with steering for both pairs of wheels and a device that automatically banked the wheels relative to the ground on turns. Even the prosaic sample I tried made conventional automobiles look literally silly in respect of hillclimbing—it would go up near-precipices without loss of traction—roadholding and braking. Upshot of this unique exercise was a long legal wrangle over patent rights that Fred either sold or didn't sell (don't ask me which) to millionaire industrialist Harry Ferguson. A short while before his death, Dixon accepted an out of court settlement equal to about $40,000.

The last farewells to Fred Dixon were conducted in a way that would have warmed the life-loving old Yorkshireman's heart. Invited back to his home to partake of traditional funeral refreshments following his cremation, a gang of his closer friends decided after an hour that it would be seemly to leave his widow to her grief, and prepared to take off.

"What!", she said, "leave while there's all this liquor left undrunk? Did you ever know *Fred* to do a thing like that?"

Come to think of it, they hadn't. So they didn't either,

Dennis May

Rail Job

(Continued from page 47)

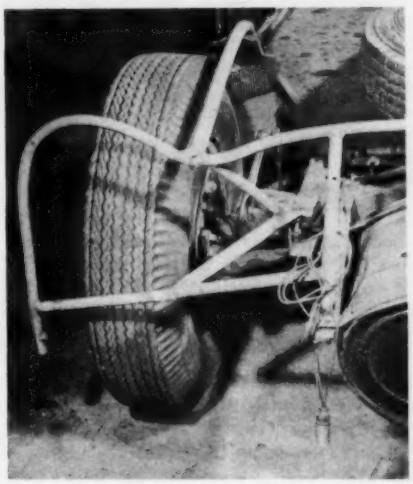
driver's compartment could allow. The rear of the engine now nudges against the dash panel. This placed the transmission further aft than the driver's compartment. The shift lever was brought forward by a solid shaft linkage.

Steering is another example of cross-breeding. It is a mixture of various Gemmer units, most of which are mid-40 Chevrolet parts.

The engine was installed with minimum of alterations. Special Iskenderian cams were placed in the engine. Tom then designed a special manifold to accept three Carter sidedraft carburetors. The cooling system was adapted to a Nash Ambassador radiator.

Only other engine changes were a lightened flywheel and special clutch springs; the whole assembly was then balanced.

"During our first racing experiences with this engine," Tom says, "we failed



Cross spring, Houdaille shock at rear.

to have good luck with the stock clutch. We eliminated the problem by installing a different facing and heavier springs."

The body is of a special design and built of plastic reinforced Fiberglas. According to records three have been built by the original designers, Snohonish Plastics Company. The body was modified and redesigned to fit the chassis by Fox. The body support frames, made of shaped conduit, follow conventional truss-type with outriggers, but instead of being welded to the frame, they are bolted. In this way the body and frame supports can be easily removed in individual units. A new body design can be easily installed at a later date.

"I may put a new body on the car at a later date," Tom says, "one that's a bit more American. Still, since the car is half English and half American this might not be a bad compromise. It's a good car to drive with any kind of body. I go Poguar."

—Bob Behme

Sebring Rules

(Continued from page 23)

the same period if they have an open body styling.

Category I Series Production Touring Cars must have at least two seats when the engine capacity is below 1000 cc, and at least four seats when the capacity exceeds 1000 cc. Those cars with normal front seating for two passengers and a space at the back for dogs or luggage will not be acceptable as four seaters — even if the dimensions of the rear space are such that they allow the occasional transport of two passengers.

Improved Series Production Touring Cars (Category I, Group 2): Certain changes are allowed — larger tires (provided the wheels and rims remain the same), make and type of carburetor(s) (provided the inlet flange dimensions supplied by the manufacturer remain the same), gear ratio (provided the car is available with the altered set of ratios from the manufacturer when new), larger fuel tanks (with the same proviso) — and so on.

Basically, it is permissible to rectify, lighten, balance or tune all existing series production parts, but not to add anything to them. Moreover, it must always remain possible to identify without question the series production part.

Special Touring Cars (Category I Group 3): Must fundamentally be derivatives of series production tourers, but may be subject to modifications or additions carried out by the owner or manufacturer with a view to improving the performance of the car. These modifications may affect the mechanical parts of the engine, the transmission, steering, suspension, the number of carburetors, inlet and exhaust systems and so on.

The coachwork must be as issued by the manufacturer; the chassis may be strengthened but not lightened or cut. However, a 10 percent tolerance on the weight laid down in the Recognition Form for the corresponding series-produced model is now permitted — instead of the previous 5 percent. All casings and units housing the mechanical parts with the exception of the cylinder head and sump — must be unaltered, as well as the number of cylinders and crankshaft bearings.

Grand Touring Cars (Category II, Groups 4 and 5): These are defined as vehicles built in small series for the use of purchasers who require the best performance and the maximum comfort with no special concern about economy. They must comply with a model well defined in a catalogue and be offered to the purchasers by the usual sales department of the manufacturer. All that is specified above with regard to Category I, Groups 1 and 2, applies here, with the exception of the production requirements, as already mentioned, and the additional fact that the minimum number of seats is *two*, whatever the displacement size.

Special Grand Touring Cars (Category II, Group 6): These are cars derived directly from those allowed under Group 4 or brought into the Grand Touring category because of a change in coachwork. However, the weight of such cars is not subject to any restrictions at all. The coachwork may be that of the builder of the chassis or that of any coachbuilder, but a Grand Touring car equipped by the manufacturer with closed or convertible coachwork may not be equipped with special open coachwork.

A Recognition (Homologation) Form for approved cars by models is issued by the F.I.A. and is available from them, at Federation Internationale de l'Automobile, 8 Place de la Concorde, Paris, France.

SEBRING CAR ELIGIBILITY:

Cars entered are to conform to Appendix C of the Sporting Code, as described above. For supercharged cars, exact cc-displacement is to be multiplied by 1.4. In addition, the following Appendix J cars are allowed:

Touring Category I, Group 3, Classes 1-6.

Grand Touring Category II, Groups 4, 5, and 6, Classes 1-11.

Abarth-Zagato-Fiat: Typical Turismo.

WHAT DOES IT ALL MEAN?

The foregoing is wide-open material for the rule-bender and loophole-dodger, and makes good reading with that in mind. These are abridged from the original text, though, so don't try to pin them down too tightly.

Adopted almost verbatim from the 1956 Le Mans regulations, the new Appendix C is of great interest to American sports and racing organizations. No mention is made of prototypes, thus giving free rein again to imagination, *within* the new bodywork restrictions. Specifically, central driving seats are barred, as are solid, non-removable tonneau fairings over the passenger seat. We feel that Porsche's deduction last year was the correct one, and we anticipate a return to the coupe bodies that dominated racing in 1952.

Actually, the adoption of these regulations by the FIA does not mean that all 1957 sports car races for the Manufacturers' Championship must be run under the new Appendix C. It *does* mean that if your machinery conforms to these rules, the race organizers *must* accept it for the competition. They can admit other cars if they like, by adding supplementary regulations, which might be either original or from other portions of the FIA rules, like the portions of Appendix J adopted for Sebring.

Provisions of Appendix J are worth some study, specially with the limitations set for the Twelve-Hours. It makes us wish even more that someone had built over 1000 two-seaters with an engine under one liter, since that would be about the most exciting item in Category I, Group 3. Take note, BMC, with your very nice new 948 cc mill and sports-type gearbox. A Crosley Supersport or Hotshot might comply, and full engine and chassis modifications are allowed. Same goes for the Abarth-modified 600 Fiats.

Over one liter you have to have four GENUINE seats, which at Sebring (limited to Class 6) means gutted MG Magnettes, Austin A50's, 1400 Fiats and Giulietta sedans, with full Alexander, Derrington, Abarth, Veloce and suchlike power under the hood. Any family men in the crowd?

Also pregnant is the Special Grand Touring (Category II, Group 6) Class, which from where we sit looks open to Superleggera-bodied 285-horse Corvettes, not to mention, for example, a Fiberglas coupe body on a Plymouth Fury stock-racing chassis. If this class were to become more popular in this country, we might see a real renaissance of the custom lightweight body builder, and Detroit's steady marching into Grand Touring territory might bring them full circle to the sports car again, by a logical path of genuine racing development.

A strangely ominous note is sounded by Section 3, Paragraph b of the Sebring Rules. It reads: "Fuel injection engines are acceptable on equal terms with carburetor engines; however, they must be used in conjunction with the pump fuel as supplied by the Organizers." Let's hope so, men! Surely fuel injection is not the great bugbear to race officials that supercharging once was, and even contemplating a restriction on it now would cut its development to a standstill.

As a matter of fact, of all the world's significant manufacturers, only Mercedes has proven conclusively that fuel injection is a good thing. On GM's dynos, the 283 horse Chev injection engine will actually deliver 285 horses with two four-barrels, and performance of the injected job is slightly better only by virtue of faster throttle response.

If there are any Corvettes at Sebring, though, their engines will have 11/1 compression ratios to take advantage of FI's more accurate distribution, and with "awful-awful" cams will have a genuine 315 bhp. It's more than likely that they'll be hotly chased by the very fast new Mercedes 300SL Roadster. Should be good watching!

Also running, of course, should be such miscellaneous iron as the new four-cam 3.5 liter Ferrari V-12, if there's enough prize money involved. D-Jags will be upheld by US owners and the Ecurie Ecosse, the '56 Le Mans winners. Those should be the protagonists, but not to be discounted are Aston Martin, Maserati and Chevrolet in the open class. We're not trying to predict, since entries are in a complete state of flux at the time of writing, but we have tried to present you with the rules of the game plus our interpretation. Late entries are a mere 150 bucks, and you might just be able to squeeze under the wire. #

Pre-Sebring

(Continued from page 21)

nell, Brooks, Salvadori, Shelby and storming young Stirling Moss. Maserati had Jean Behra, Perdisa, Carlos Menditeguy and the iron man Piero Taruffi, remembered at Sebring for a fantastic feat in 1955: trying to avoid disqualification he had pushed a Lancia nearly a mile and a half, delivering it to the pits at a smart dog-trot.

Among the lighter cars the Spyders stood out. They were very fast, so were the Osca's and the 1500 Climax Lotus entries. Cooper and Lotus had things to themselves in the 1100 class, and the DB's figured to be unbeatable in the 750 cc. category.

The first practice day, Thursday, showed us two things: The 'A' was by a long way the quickest MG ever, and the big iron was running fast enough to make your hair stand on end. Moss knocked off a 3:32 lap in the Aston but announced quietly that the car was not going to be fast enough to win. The Corvette squad was using a special training car, and nothing else was in sight. Night practice was uneventful except for the destruction of one of the Morgans. Manuel Bos, very tired, and urged by his pit to knock off for the night, went out for one more shot and rolled the car. We had decided on a 4:35 to 4:40 lap time, though Gus Ehrman had turned one at 4:28.

We used the second day of practice to bed down our tires and refine engine tune. Some of the other teams were in trouble. Two of the 300SL's were bothered by oil spilling onto the manifolding in the fast left-hand bends and had to give up when no way could be found to cure it. The Corvettes were out in force, and no one knew how many cars they ran through to get three to start. The general opinion was that they were about as stock as Indy cars, and the biggest-engined of the lot was running 5180 cc.—curiously similar to the displacement of a Pontiac, but later shown to be actually a punched-out Chev.

Gus Ehrman and I sat on the pit railing and watched the big stuff go by. We talked about Fangio's fabulous smoothness, how savage Hawthorn was, the brilliance of Mossie's line through every bend, the hot-blooded fervor with which the Italians drove. We talked about Sebring five years past, when nobody really came. There was a quiet, unofficial boycott on then but we came anyway, and there were times when we knew that if we broke anything in the race we'd have to hitch-hike home. My wife, Anese, came up to join us, with Grant Tolley, our pit chief, and Johnny Van Driel and we all kicked it around. Finally Gus and I went out to give Grant a couple of fast laps—4:24.1 and 4:24.2—and then we knocked off for the day.

Race-day morning at Sebring always re-

(Continued on page 56)

(Continued from page 55)

minds me of the pictures of bull-fight crowds streaming toward the arena— except that at Sebring the animals—the cars—are mixed in with the mobs filling every road to the circuit. I remember best the three Ferrari entries, first Musso with his helmet on, stern and serious, then Castellotti, ditto, then Fangio, the champ, sitting there limp as a plate of spaghetti, wearing a pork-pie hat and waving to all around. By 8:30 we were gassed and on the line, by 9:30 the drivers' meeting was over and nearly all the cars were lined up on the grid with the 5-liter Corvette on top. I changed my shoes and put on my sneakers, slid my watch up my wrist a couple of inches, buttoned up my coveralls, I wiped off my visor, shook hands with Grant and Jock, kissed my wife and walked down to the car. I checked the cockpit twice, and walked over to the #49 spot on the pavement and sat down. Steve Spitler, starting #50, and Fred Allen on #51 came over and we talked about how to stay alive in the first mad rush for the gate. Since no one had a better idea I decided to stick to my time-honored plan of running very fast and getting the hell out of there before things got too crowded.

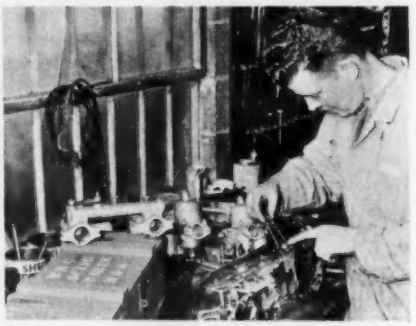
I pulled my helmet on at the one-minute signal, snapped the catch, locked the buckle. At 30 seconds I checked everything one more time, watch, shoe laces, helmet strap, sun glasses. At 20 seconds the backward count began, at one second the man on my left broke, obscuring my vision and costing me a step, also a pair of shoes to my wife, because I had bet her I'd be first man to the car door. As it was only Mossie had me, by an eyelash. Inside the car it was the well-rehearsed drill: key, switch, clutch, a quick look and pour on the coal. I was third away, having passed up the safety belt. I'd get it after the first lap. Going down the warehouse straight for the first time I felt the way a running dog must when they turn him loose on the first rabbit of the season. I got around the third time in under 4:30 and the pits stuck up a slow sign. Pretty soon #50 pulled into sight and then #51. I settled down to 4:37 with #50, #51 running according to plan five seconds slower. I set up my cut-off points and started watching the race.

Hawthorn, Moss and Fangio were lapping us now, going by like a train, right on the limit—Hawthorn staring ahead as if he wanted to kill somebody, Moss sitting way back, arms out, sighting down the bonnet at the bends, and Fangio looking as if he might be sound asleep. Right away things began to break up: a 1.5 Maser in the first few laps, an Osca into the sand. One Corvette went out after the noon refueling and Carlos Menditiguy flipped a works Maserati and was taken to the hospital in bad shape. We lost a little time refueling. The Lotuses were eating the Coopers and the DB's were running away with the Index, as they were expected to do. The Porsches were on top of the Oscas and flying. Titterington still led on #8 Jaguar, with Collins 20-odd seconds back and Castellotti, Fangio's relief right on the Aston's tail.

On our second refueling #50 had to get a throttle linkage stuck back together and it cost a lap. The brakes on #49 were running out, and when I got back into the car at 4 o'clock I found it took four shots at the pedal to get them. At Sebring you have to brake hard five times to the lap, and you just better had have 'em. In the seventh hour the Porsche team died, and Collins had broken up the lead Aston Martin. Hawthorn had trouble with the discs on the fastest Jaguar and only the Ensley-Sweikert car was still well placed. Parnell and Taruffi were coming up, and Fangio and Castellotti, well ahead, still had Schell and Musso backing them up.

When I came in #49 had next to no brakes but was leading #50 by one lap and #51 by three. Then #51 went into the sand and ate up 33 minutes of digging-out time. But we were still running as a team, and just after dark, when the Portago-Kimberly Ferrari came in and gave up, we were the only team still intact. Our #49 was stopping, if you could call it that, on the rivets, but we knew we could hold out.

Ferrari still had first and second nailed down, Parnell and Brooks running third and crowding. Taruffi and Behra had the last surviving works Maserati in fifth



Engines were tuned to peak, yet stock.

place just behind the Ensley Jag. The two remaining Porsches were going magnificently and lay in the first ten. One DB was running strong but it had sucked its gas tanks dry on the circuit and so was out of contention for the Index. The Coopers were the only 1100's left and they were stroking.

At 9:40, 20 minutes after the Parnell Aston had gone out with a sheared oil pump drive just as it looked like taking second place, we called the A's in and told the boys to stroke around in 5:00 and finish in line abreast. There were 24 cars still running, and the fire and sparks from the finishing bomb were still hanging red in the air when #49 showed up on the finishing straight, #50 alongside and #51 a half-length back. The first two cars had done 151 laps, the other one 139.

There were two big trophies for Ferrari and Porsche for overall and index wins, but we were happy with ours. We'd started three MG's and we'd finished three MG's. We weren't mad at *anybody!*

And this year? We'll see, we'll just see. At any rate we'll be there when the gun goes off, and that's the only thing anybody can be sure of about Sebring. Because when the pack dives down the funnel for that slot under the bridge, all bets are off.

David Ash

No Meatball

(Continued from page 27)

mains are fed. Recently this gallery has been roughly quadrupled in diameter to give better flow and a bigger reserve of cool oil near the bearings. In short, the correct lubrication of an 8000 rpm engine is science, art and craft combined. No washers under the relief spring here.

Now a traditional Maserati feature is the supply of cool water direct to the exhaust valve guides and seats. The main volume flows up the front into the head through a six-port manifold. A take-off on the way up supplies the wet "Ghisa" cylinder liners via a gallery on the left-hand side.

Seven helical gears drive the twin overhead camshafts, which have seven journals each and take on their oil at the center bearings. Valve side thrust is absorbed by pivoted fingers, and each triple coil valve spring can support 264 pounds when compressed. The intake valve is 1.81 inches in diameter, while the exhaust measures 1.58 inches. The cam lifts these 0.315 inch, and the sharply pent-roofed pistons try by the grace of God to keep out of the way. They are made by Borgo, and carry two compression rings and one oil ring by Kiklos above the wrist pin. Below it is another oil ring on the full skirt. The combustion chamber is a clean hemisphere, with the vertically-placed plugs just as close to the center as possible. This isn't very close, because the valves and their seat inserts take up a lot of room in there.

Intake port diameter is 1.77 inches, which matches right up with the 45 mm bodies of the three twin-choke Weber carbs. This size is nominal, however, the actual venturi size depending on the type of course: big for fast and small for slow. Jet sizes change as a function of the weather. Air is drawn through ram tubes from a recessed air box.

The oval exhaust ports are 1.73 inches across at their widest point, and line up with two three-branch collectors. On earlier 250F's these faired into two pipes which went all the way back, but the two offset machines blend them together into one big drainpipe. This seems to be the best carbureted job so far, and it's putting out between 285 and 290 horses. The tach is red-lined at 8200, and Moss used every bit of this at Monza to stay ahead of the Ferraris and the Vanwall of Harry Schell. Maximum torque is 206 lb.-ft. at roughly 6000 rpm.

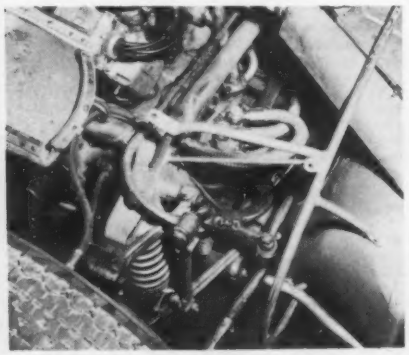
Maserati have been through the hoops with fuel injection, and nobody there is quite sure just what it's good for. Their basic injection method is now the best in principle, being a chain-drive Bosch-type timed pump feeding nozzles just at the top of the cylinder wall. This is a neat trick with wet liners, by the way. So far it's like the very successful Mercedes layout, but Maserati injects against the intake valve while the Mercs sprayed the exhaust valve with cool fuel.

Moreover, Bosch had a very sensitive and

(Continued on page 58)

(Continued on page 57)

complex metering system for the Silver Arrows, while the Modena mechanism looks like a fugitive from a Tinkertoy set. Volume of fuel injected is related directly to throttle position by a disc cam, the contour of which can easily be varied during experimentation. It's easy enough to arrive at an optimum setting for each constant speed level all the way up the range, but in a transient condition, like tromping down at low speed, it gets completely confused. Actual performance may thus never meet the promise of the high maxima obtainable.



Suspension, fuel lines, air duct here.

Baffles cast in sump just clear crank.

This is where the Orsis stand now, but the Formula is set to run through 1959. What do they have up their sleeve for '57? For one thing it's definitely known that a flat 12 cylinder water-cooled engine is on the drawing boards; whether it will be ready this year only time will tell. The biggest worry is finding drivers. Behra will undoubtedly stay with them but at this writing Moss has pledged allegiance to Vanwall. Maestro Ugolini has made great strides in welding together a relatively coherent racing team during the past season despite the fact that some of the Maserati pit stops take on all the aspects of a Ringling Brothers, Barnum and Bailey clown act. But one thing is sure, the competition during 1957 will be rough indeed and the Modena factory will have their work cut out.

Jesse Alexander

Triumph R. T.

(Continued from page 19)

Top bows fold down neatly at the back of the cockpit, and the top itself comes off to be stowed in the trunk or garage. It's nicely made, and has a colossal rear window giving near-perfect vision, but the attachment to the windshield by ten snap fasteners is neither rapid nor waterproof. The side curtains are heavily made, though at the back between the door and the top they just can't seal a space about a foot long that inevitably bathes the driver's elbow in cold wind, rain, etc. Rubber weatherstripping on the curtain would be an easy, quick solution. As compensation the sliding side windows work well (when not frozen), and don't cause serious leaks.

The heater has a variable-speed fan and vents which can be closed to duct air to the very effective defrosters. For straight interior heating, though, on a cold day it can just about cope with the feet and lower legs. It's definitely no coupe, and the hardtop version offers very little improvement. For warmer weather there's a handy cowl vent.

Separate bucket seats are now placed at a comfortable angle, and have moderately curved backs which give fair lateral support to the occupants. As with most sports cars, getting in and out can be awkward with the top up, including the operation of reaching for the interior door latch cord. When you plop into the seat, though, you find more leg room than you can possibly use, plus plenty of head room. The one sore spot, just as bad now as ever, is the left elbow room with side curtain in place. With the car open the door cutaway gives you action space, but it lets in a lot of wind around the kidneys.

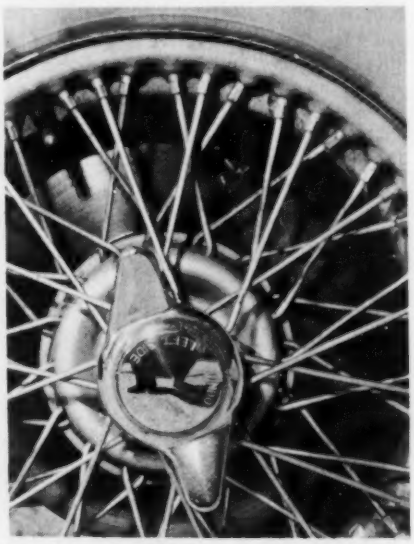
We liked the TR3 driving position very much, since the room inside and good seat angle are matched by a steering wheel of good size placed well away from the driver. This car had the non-adjustable column, which is actually better than the sliding version if you prefer this long-reach style of driving. Such isn't really required by the Triumph, which has steering fast enough to avoid extreme cross-hands maneuvers. In all respects the steering is par for a production sports car, having a slight amount of play, and good road feel with moderate kickback and self-return action.

Its slightly forward weight bias and inclined rear springs give the Triumph a moderate understeer characteristic. It thus tracks well on the straight — isn't tiring to hold — and has no vices at medium cornering speeds. When the show really gets rolling the tail end makes its presence felt, and the transition from tracking to sliding can be sudden and choppy. The margin of predictability is just wide enough to make the car enjoyable to the sports driving newcomer, though, who will be able to anticipate most of the car's motions.

Response to the wheel is quick, once the front tires take a bite. Triumph recommends tire pressures six pounds higher than standard for fast driving, and we adhered to these. Using standard Dunlops, the amount of tire noise on corners was negligible. Yes, it does lean, but not enough to affect control.

Cornering agility of the TR3 is partly a result of the short wheelbase, which also causes a bounding, pitching motion over some undulating road surfaces. The experimental boys in England have tried to mollify this by changing shocks and spring rates around, and the present combination is probably the best so far. With moderate tire pressures the TR3 gets over smaller road ripples very smoothly. It's a good compromise between ride and roadability.

Practicality runs rampant through this car, from the fully-detachable steel fenders to the wide-lidded roomy trunk and



Disc is exposed, spots at trailing edge.

compact spare and tool storage. Two people can travel long distances on this storage capacity, and the gas mileage with overdrive will please them along the way. One unfortunate (though undoubtedly cheap) feature if you're under the hood very often is the use of two Dzus fasteners with a special opening key to get at the works. An inside latch would be so much better for oil, battery and water checking.

Once under there the accessibility is great, all the components being well laid out. This is fine both for the back yard and the pit apron at Le Mans, and like many other features shows the value of the racing and rally background of the latest TR Triumph. It has lots of punch and brakes to absorb twice as much, plus a docile willingness to be tossed about as you wish on your favorite winding road. There's also just enough power on tap to give you an idea of what drifting is all about. Along with this there's interior and luggage room the equal of that of any other two-seater sports car — and all that for an extremely attractive price! Corners have to be cut here and there to do it, but you may feel that it's well worth it.

Karl Ludvigsen

G. P. Fuel

(Continued from page 31)

Benzol provides lower coolant temperatures for a given power output, a slight but measurable power increase and carte blanche to the hop-up artist on compression-raising modifications. Cost-wise this fuel is near the bottom of the list, although its price varies with availability. Between 50 cents and one dollar per gallon is the range this writer has experienced. It may be more or less in different sections of the country. Benzol has another outstanding virtue: it may be mixed with nitro-methane without fear of separation. This, along with the 10 percent richer-running tendency of benzol, means that a 90 percent benzol, 10 percent nitro-methane blend may be run through gasoline carburetors with impunity. This has much to recommend it to the beginner. Ordinary fuel pump diaphragms lay down and die in the presence of nitro, so substitute one of the commercially-available neoprene items. Spark plugs two heat ranges colder than those proper for gas are a good starting point when using this blend for the first time.

Many afficionados of road racing are probably surprised to hear of mixing nitro-methane with anything other than methyl alcohol, or methanol, as it is known, but benzol has proven to work out quite well with nitro.

Unlike benzol and alcohol, nitro-methane does not boost power through anything so nebulous as greater latent heat of vaporization, or higher octane rating. Nitro is comparatively crude, but oh, so effective. Nitro-methane, if properly used, can increase your engine's power 10 percent for each 15 percent increment you add! It's available under the brand name of "Peak Nitro" in sealed gallon and five gallon cans. Most reputable speed shops stock it, and it's also available in bulk from several outlets.

You don't pick up ponies in wholesale lots like this with anything except added oxygen. Every graduate of a junior high school chemistry class has seen an ordinary match burned in the presence of oxygen. Every welder knows what it does for acetylene's rate of combustion. What it does for the match and the welding torch, it can do for your engine. It can enable your engine to burn more fuel in less time, thus increasing its capacity to do more work in less time, too. And we all know that work and time are the basis for horsepower measurement.

Nitro-methane carries oxygen into your engine's cylinders as part of its chemical composition. When your spark plugs light the fire, the hydrogen and carbon of the nitro-methane are consumed (at least partially) along with whatever else you mixed. The big difference is the speed of the burning. It goes so fast that you've got to be sure to have enough combustibles in there, or your fire will run out of fuel before the power stroke is

completed. If that happens, does the fire "go out," you ask? No, it doesn't. But lacking additional hydrocarbons necessary to continue combustion, nitro, nitro-alcohol or nitro-benzol mixtures remain undaunted. They just happily burn whatever else is handy — meaning the insides of your engine! So make sure you've plenty of combustibles in your nitro mixes to satisfy that oxygen's thirst, and you'll have no trouble.

Nitro's use for road racing has been extremely limited to date, and for many good reasons. Nitro's power increases are accompanied by proportional rises in cylinder pressures and temperatures. In engines of low heat rejection, such as our domestic crop of OHV V8's, this is less of a problem than with flat-head and F-head designs. But some of this additional heat is bound to show up in higher coolant temperatures in any liquid-cooled engine. Air-cooled engines are poor choices for nitro use, except for extremely short-distance sprint work such as quarter-mile drag racing. This is because they normally run at temperatures that are just short of nitro's detonation point (when under compression) all the time. It doesn't take much to push them over the edge.

When nitro detonates, the process is similar to detonation with any other fuel. Burning is initiated by spontaneous combustion which is caused by heat and pressure reaching the fuel's "flash point" before timed ignition would ordinarily occur. The result is that peak combustion pressure is reached before the piston reaches top dead center — causing a tremendous strain on the engine's reciprocating parts. With nitro, detonation happens the same way — but the effects are much more dramatic. The hot rod slang term "they took it home in a basket" sometimes isn't slang when this happens — it's actually a good description. High internal temperatures are the primary cause of detonation with nitrated fuel blends. These are frequently caused by lean mixtures. Always go larger in jet sizes whenever there's any doubt, and keep a close watch on coolant temperature. If you do, you won't be needing a basket for *your* engine.

Alcohol, nitro's most common companion in "hot" fuel blends, has much to offer the Formula Libre competitor. Properly jetted and timed, and with the correct heat range spark plug, most engines will produce as much power on straight methanol as they will with the 10 percent nitro, 90 percent benzol mixture. This is due to the tremendous increase in the weight of the charge drawn in when alky is used.

Cooling is a problem that ceases to exist on straight methanol. If anything, getting some engines up to a decent operating temperature when running this fuel is the only difficulty. Hemispherical combustion chamber engines are particularly noted for their cold-bloodedness when using methanol. Flat-heads, normally the most-often-boiled engines at a road race, become unaffected by the heat of competition when running alky.

Ether, an aromatic fuel-blend component is the subject of almost as much misinformation as av-gas. Used with methanol in percentage figures amounting to less than one digit, ether (preferably sulphuric) can correct the habit alky has of "loading-up" at low rpm's when coming out of a slow corner. Its effect on top-end horsepower readings is too small to be significant, so if you're using alky and not having any throttle response trouble at low speeds, ether has little to offer you. Best pass it by.

We haven't mentioned some of the other chemicals you frequently hear of in whispered conversations about Grand Prix fuel formulas, and for good reason, too. Ethanol, which is ethyl alcohol, a cousin of metnanol, acetone (a blending agent) and assorted other high-sounding compounds are used in European racing extensively. They don't, however, make the cars go any faster than the chemicals we covered here. These other blend constituents are in vogue across the pond because *fuel consumption* is a factor in nearly all the events. Their most popular fuel blends actually compromise between maximum power, and a good enough mpg figure to get the car through the race with a minimum of pit stops.

Happily, here in the good old USA we haven't reached that stage yet. Most Formula Libre events scheduled are among the shorter features on the card, so we're interested in how potent we can get without sacrificing *reliability*. Economy just doesn't enter into the picture.

For sheer, all-out power, you can't beat straight nitro-methane — but most engines can't use it, either. True, a few drag machines are running that way, but they only have to run for ten seconds at a time, followed by at least a 15 minute cool-off period.

A 50-50 blend of alcohol and nitro has been used by many at the annual Bonneville Speed Trials, but that's still just a seven mile run under a full head of steam. That's still too much "charge" for a road-race of average length — thirty minutes being the most popular duration for Formula Libre events.

Half nitro, half benzol has been used successfully at both drags and straightaway speed trials, but this is even worse from the road-racing standpoint because benzol is neither as powerful nor as cool running as alcohol. This mixture provides about the same amount of power as ⅔ alcohol, ⅓ nitro. It doesn't load up as badly on the bottom end, because benzol is more aromatic, but it definitely runs hotter. For a half-hour "bash," flat out in one gear or another, followed by a couple of downshifts which tend to foul plugs with almost any fuel, plus rapid acceleration out of a slow corner, we must tailor the fuel to the type of course.

For a long-straightaway airport road course, where the chutes make up half or more of the total lap distance, try straight methanol. Be prepared to add up to five percent sulphuric ether if there's even one slow corner in the circuit. If things get tough with the opposition, substitute nitro for the ether. It will prevent loading up on the corners, and will give you a better elapsed time down the straightaways.

For the twisty, turning genuine road circuits, such as Paramount Ranch, you'll need a fuel blend that will brook no hesitation when you press the loud pedal. That's benzol, for sure. It comes from the branch of the chemical family known as aromatics and smells like shoe polish when it burns in an engine, to prove it! Try running it straight for a check on your car's ability to stay cool on that kind of a course. The benzol will be better in this respect than gas, but not as good as straight methanol. If "all well and good" is the verdict, go to ten percent nitro in addition; your lap times will improve proportionately on a course of this type. Nothing gets a car out of a slow corner as rapidly as a shot of that canned torque! The beauty of it is that it works just as well at 500 rpm as it does at 5,000. If it gives ten percent more horsepower on one end, you also have just that much more on the other!

If your charger doesn't respond to any of the diets we've discussed so far, you have a real problem—temporarily. You can solve it by going to alcohol-benzol mixtures, varying the proportions to give speed, slow-corner acceleration, and the correct balance between straightaway maintenance of even coolant temperatures. The only competitors falling in the latter category will be those who, either through design (undersize radiator; L-head engine) or accident ("hot spots" in the head or block) will have cooling troubles when running the 90-10 benzol-nitro blend.

With any of the blends we've mentioned so far, other than the alcohol-base mixtures, you can use your present carburetors. Just don't get frisky with nitro without increasing your carburetors' ability to deliver the goods, or you'll have your engine practicing self-cannibalism.

For those who are trying the blends requiring drastic increases in fuel-flow rates, the following advice is given: with all due respect for the manufacturers of SU carburetors—get something else! The SU people are extremely competition minded—jets, needles, etc., necessary for running alcohol are available for their instruments, direct from the factory. And that's fine—but it's the etc., etc., etc., that we object to!

In order to compensate for changes in atmospheric conditions, perhaps a minute or two before your race is scheduled, you've got to have a simple carburetor to work on. This writer has personally played cat and mouse with a capricious cloud which persisted in alternately obscuring then unveiling the sun—it's maddening! The sun "goes in", the temperature drops ten degrees, the humidity goes up ten percent, and there you are—changing jets in three carburetors. Perhaps even before you have the opportunity to make a test run to see if your labors have compensated for the change in the weather, the sun "comes out" again!

A carburetor that's so simple that it has been called crude by some, the revered Stromberg 97, helps a lot. But even then you can tune it in the shade, and

have it all wrong when you push it out into the sun!

If you can be bordering on apoplexy under these circumstances using simple equipment, complicated carburetors would find you still tinkering, long after your race had been run—without you.

Strictly opinion, now—but one that has literally thousands of adherents: We recommend that for alcohol-base fuels, the owner of any foreign car get himself a set of two-throat Strombergs. You have models EE-1, 81, 97, and 48 to choose from, on the basis of venturi area size in relation to cubic inches. A good figure to stick with is 60 cubic inches of engine for every square inch of venturi area. Many of the smaller engines have twice as much venturi area as this factor would indicate, but they don't have to keep the venturi velocity up high enough to atomize alcohol which is just about twice as dense as gasoline. Just because the "Gran Turismo" model something-or-other has only 30 cubic inches of engine for each square inch of venturi area, don't try to do it too. Remember, that engine is designed for gasoline, not alcohol. On the other hand, if nitro is your interest, you may be forced to make a compromise on venturi area—on the high side! If your calculations show that two carburetors will be too little and three will be way too much—use three! That's to be sure you have enough area in the discharge tube, which carries the fuel from the carburetor jets into the venturi airstream.

Jets alone do not a rich mixture make—write that on your garage wall! As the jet size approaches the inside diameter of the carburetor's main discharge tube, the richness of the mixture ceases to increase in proportion to the jet size increases. When you reach this point, you can do one of two things: resign yourself to using mixtures not requiring any greater fuel flow than you now have or, add another carburetor. You may not need the added venturi area another carburetor will give your engine. But if you've run out of main discharge tube area, and need more, that's the way to get it.

Happily, there's another way out. Though you have to spend some money to do it, the cost is extremely reasonable in proportion to the results. A Southern California firm now makes some special carburetors and fuel injectors which can handle fuel mixtures running the gamut from straight gasoline to straight nitromethane. They may be mounted at any angle, and were not intended for any specific make or model engine at all.

For road racing use, the Norden (that's their name) fuel injectors are to be preferred over the Norden carburetors, because the injectors eliminate floats and bowls, and provide mixture control that's positive even when you're upside down—which you shouldn't be if you've paid attention to what we've said here. We hope you'll be out in front, instead!

Bob Pendergast

Technotes

(Continued from page 10)

coils and bigger shocks. Hold off on putting in a heavier torsion anti-roll bar until the first changes are made. The beast understeers enough as it is. Also explore methods of lengthening the pitman arm or shortening the equivalent steering linkage arm.

GEARBOX-EATING CORDS

The front-drive article in the November, 1956 issue of SCI provoked a few questions. In the capacity of Regional Representative for the Auburn-Cord-Dusenberg Club (414 Emmons Blvd., Wyandotte, Michigan) I have gathered a lot of information on the Cord's problems and thought I might pass some along.

After the first few months of production, Cord had relatively little trouble with the universal joints. The tightwad who wouldn't spend the money for Bendix to replace the Rzeppa joints had tremor and a "knocking" sound in cornering under power but could still go as fast as his engine would allow. The few Rzeppas installed did have varying degrees of success and some were like "rocks in the hubcaps."

One of Cord's monster problems was the transmission, and the Service Department was like a nightmare from the day the first car was delivered. The rotating parts were made out of SAE 5140 steel, a through-hardening type that was popular then. The gears were prone to be brittle, and their high helix angle, almost 45 degrees, heavily thrust-loaded the second-gear set especially. High fracture failure of second was also aided by the vacuum-servo shift.

The synchros were not blocker-type and when the gear was preselected and the clutch depressed, there was often tremendous shock-loading because the shifting piston just slammed the gear into engagement. The switches that operated the piston and the cross motion were poor and always needed tender regard.

The low and reverse gears were spur type, and there's no servo mechanism that won't chew up the engaging sides of such sliding gears. The metal particles gnawed off get in the transmission oil pump, and if the chips somehow scraped through the pump they'd clog up the filter and slow down the oil flow to a trickle.

Also added to the long list were brittle thrust washers in front of third gear. Auburn had a completely redesigned transmission ready for 1938 which would have solved many, many problems. Actually, some form of semi-automatic would have come out before 1940. I do think that you'll be getting all kinds of comments from Cord owners who do not feel that universals were the main problem.

Joseph L. Knapp
Wyandotte, Michigan

ANOTHER REBEL

In your article "Vitality for the VW" (SCI, July, 1956), the author mentioned the use of oversized 80 mm high compression pistons for the VW engine. I would like to know where these are available. I would also like to know if it is advisable both to modify and supercharge the engine. If so, how could I determine the peak rpm?

Please let me know if there are any commercially-made Fibreglas bodies that fit the Volkswagen chassis, as this is the type I would like to use. I found the above-mentioned article very interesting. Keep up the good work.

William McLean
Youngstown, N. Y.

The special 80 mm pistons are obtainable from JEM Engineering, PO Box 447, Hermosa Beach, California. Since these give a compression ratio of seven to one, they would just work well with a blower. Any higher compression ratio might lead you into complex detonation problems, at least with average pump fuels.

A good combination would be: the 80 mm pistons, an Iskenderian road grind cam, and a Judson blower. This might just be free enough to allow the use of a slightly larger Solex carb. Real ambition would come up with a bigger, smoother intake "manifold". The Pepco blower or other Iskenderian grinds are also possibilities, depending on the way you want to drive. If you want to compete, use the semi-race, and when you write the cam-maker ask him where that particular grind peaks. He should be able to give you an rpm rundown. For all-out work with a blower a full-race cam is not essential, and the semi will give you more coming out of the corners.

We don t know of any commercial Fibreglas bodies designed specifically for the VW, but you might drop a line to Devin Enterprises, PO Box 357, Fontana, California. They make several attractive small bodies, and one might be adaptable.

COOL VOLVO

We've just gotten a Swedish Volvo for a second car, and there are two questions I'd like to ask. It seems to take the engine an awfully long time to warm up; could you tell me if it has a thermostat? Second, could you tell me of any four-speed transmission that could be adapted to this very efficient little engine? The car is a little slow in second and could use another forward speed.

John King
Cleveland Heights, Ohio

The version of the Volvo that we tested in our September, 1956 issue had an adjustable radiator blind, and seemed to have no thermostat. More recent editions lack the blind, with the exception of the station wagons, and it may be that they haven't fitted a thermostat to take its place. The cars are becoming famous for their cold running, and seem to be eminently suitable for desert use. If you haven't the radiator blind, check and see if you can get one for the car.

As for the gearbox, Volvo does have a 5-speed box for their sports model, which should be in some semblance of production soon. You could look into the installation of a TC or TD MG box, or the later B-type BMC transmission as used in Austins, the MGA, etc. All these use a Borg and Beck clutch, as does the Volvo, and should adapt.

(Continued on page 64)

Caballo II

(Continued from page 37)

Sutton admittedly borrowed as many lines as possible from current Maserati practice. The structure of the Kurtis frame necessitated flatter sides than Sutton, a believer in transverse streamlining, likes. He is pleased with the Maserati-style nose which he's convinced will exert a very helpful pressure on the front wheels at speed. The headrests hide a pair of super-substantial roll bars.

The real beauty of this body is much more than skin deep. Sutton abhors Dzus-fastened panels, is a firm believer in the stressed-skin school of lightweight body design. The new Caballo body and its supporting framework is welded to the chassis frame and adds profoundly to the strength of the total structure. Sutton gleefully demonstrates this by banging the panels and even by grabbing the beautifully-beaded rear wheel cut and almost lifting the car off the ground.

Other hidden virtues of the body are its well-conceived and executed "internal aerodynamics." Cooling air is ducted straight to the radiator. The two openings for front-brake cooling taper down to venturis. But that's not all; large-bore Voit hoses duct the air right up to the brake drums. The decorative three-hole vent for engine cooling is contoured internally to set up an extractor effect in connection with external air flow.

COMING IN MAY:

The Beautiful BMW 507

Tech and Track Report

The vents for cooling the cockpit floor can be opened or closed with a touch of the toe. The big scoops for rear brake cooling are followed up inside the wheelwells with sheet metal ducting that carries the air direct to the drums. Just ahead of the differential there's a forward-facing louver in the belly pan two inches wide and nine inches across. If this blast of air should not be required, a flap can be dropped that will be held closed by the air stream. And in the body's tail, of course, there are large vents through which pressurized air in the body can escape. In line with Maserati thinking but treated originally is the recessed air scoop at the front of the hood. This large opening, which detracts in no way from the hood's clean lines, discharges into a sheet metal box which collects air for the injectors.

In spite of the monocoque character of this body, all its vitals are quickly accessible. The engine hood is secured at the front by long sheet metal tongues that slide under the body skin and is locked at the rear by two Dzus fasteners. The rear deck lid is attached in the same way and gives access to spare wheel and rear axle. The transmission tunnel can be removed in a minute or so. Such, then, is the complete car.

What are its chances in Italy? On the basis of Miller's past performances in Mexico, he, Harrison and the new Caballo might do very well. The Mille Miglia can't begin to compare with the Panam course when it comes to making atrocious demands of a machine. Its smooth, well-worn pavement is comparatively kind to tires, it's limited to fairly low altitudes, it imposes far less straight-away punishment. On the other hand, it calls for a different kind of endurance: 10 or 12 hours of continuous hard driving, depending upon how fast you want to go and can. And the threat of very wet weather with all its implications.

Miller and Harrison have the training of three similar races among their qualifications. Months before leaving for Italy they had strip maps of the entire Mille Miglia course cut in five-kilometer (scale) lengths and laid out in book form so that the big job in reconnoitering will be to add notes to the individual pages. The car carries a 140 mph speedometer, not for indicating speed, but for recording distance covered. This is vital information for the co-pilot and the instrument is located directly in front of him. The job ahead for Miller and Harrison is one they know very well.

Also, they're far from being in this alone. What looks on the surface like an undermanned and perhaps amateurish pipe dream has considerable substance, with overtones of foreign intrigue. Several firms are helping in small but important ways. Grant Piston Rings are in there, so is Firestone, General Petroleum, Socony's (Mobil products) western U. S. entity, has arranged for Socony in Italy to help these Americans with fuel and with setting up pit stops.

Hot rod organizations and NHRA are helping a lot. One result of this is the rallying 'round of NHRA members who are with the U. S. Army in Europe. Army personnel have been making advance arrangements for Miller and Harrison — will meet them in Le Havre, conduct them to Brescia, serve on pit crews and manage the pit stops. A number of stateside friends are making the trip as spectators and will be on hand to help as needed.

One one of the biggest problems of all in this whole campaign has been money . . . naturally. How do plain, hard-working people finance an operation like this? Well, they do it by pouring every cent they have into it, and it's a very costly campaign. The $1300 contributed to the Caballo Fund is just enough to cover round-trip transportation for driver, co-driver and car They're hoping that more help will materialize soon. Why don't *you* become a sponsor of this effort too? Every dollar will go a long way. Ak Miller's address is 10302 East Whittier Blvd., Whittier, Calif.

— *Griff Borgeson*

Bugatti 59

(Continued from page 29)

was given a heavy coating of protective grease. Arrived at the venue of the meeting, the grease was removed and everything polished. The car made its runs, the grease was replaced, and home again, where it was taken off and a spot of polishing done. I think Mr. Clarke would be pleased to know that the car today looks to me just about as it did when it came off the dock. Clean. Very clean.

Ludington bought the car sight unseen and he paid a considerable sum of money for it, how much, he does not care to say, but I imagine a pretty good second-hand Ferrari would not have cost more. The engine was set up to run on alcohol and since Ludington did not intend to use the car for more than ordinary road work he had the engine de-tuned by the redoubtable Bill Frick. Frick successfully tamed the beast without taking much of the bite out of it. Later the block was cracked and the new one was put in by Alfred Momo. The car has had no other major mechanical attention.

Considerable modification was carried out on the Ludington car in England. In standard form the Type 59 was a single-seater, although not *monoposto*, an oil tank or a pair of them occupying much of the left side of the driver's berth, and the car usually ran under a metal half-tonneau cover. This tankage has been installed in the tail, and Ludington can carry a passenger—although not a very big one very far. The car has a Type 55 starter mounted on the gear-box, and a plate of heavy gridded metal rises from the floor and curls over the starter, to keep the passenger's feet out of trouble. A Type 57 generator was installed to take care of the lighting arrangements, and a clutch-stop to allow engagement of first and reverse without the otherwise almost-inevitable graunching. The hand-brake, normally inside on the driver's left, has been put out-of-doors with the gear-shift lever. The mudguards are beautifully made, seamed down the center in the fashion of the elektron-bodied Type 57SC's, as is the tail itself.

The engine is of course a supercharged straight eight, but not, as the resident Bugatti expert of another publication recently wrote, "like all Bugattis." (The Types 13, 22, 23, 37, 40, 37A and 40A were four-cylinder cars, and the Type 47 was a sixteen. This same tester also ruled that the Type 35B "might have been" one of the cars that hung the "temperamental" reputation on the Bugatti; many of them, he said, started but did not finish races. The Type 35 is generally held, by the likes of Laurence Pomeroy, to have been the most successful racing automobile of all time, the present included. In 1925 and 1926 35's won 1,045 events, in 1927, 806. This record, never remotely approached by anything else on wheels, causes one to wonder what the Type 35 might have accomplished had it been reliable.) Well, where were we? Ah, yes, the engine. Two hundred and sixty horse at 6,000 rpm, about ten pounds of boost from the Roots-type blower. Two Zenith carburetors bolted to the top of the blower instead of the bottom as had been normal Bugatti practice, multi-plate clutch, no flywheel. In the ordinary way of things the engine was commenced by inserting a crank amidships on the left. It worked through the timing gears. The straight pipe houses no silencing arrangement, but by exercising reasonable care, Mr. Ludington has thus far avoided trouble.

The crankshaft, set up like two four-cylinder cranks bolted together at 90 degrees to each other, is carried in six plain bearings. Head and block are in one unit, two valves per cylinder, 90° inclination, spark plugs in the center. Lubrication is dry-sump, the fuel tank holds 30 gallons, pressure-fed. Final drive, double reduction, with ratios from 2.9 to 4.5 available.

For this G.P. car the great man of Molsheim came up with a typically Bugatti innovation, the "piano-wire" wheels. This is a deceptive arrangement at first glance, because it is hard to believe that the slender wires radiating from the hub could sustain even the dead weight of the car. As a matter of fact, they don't. The wheel is solid, with a serrated outer diameter mating with serrations on the rim. Weight of the car, accelerating and braking stresses are thus cared for; the "spokes" serve mainly to locate the standard Rudge hubs. This wheel was ten pounds lighter than the slab-spoked one that preceded it, but it had its disadvantages. Rene Dreyfus, team driver for Bugatti and now owner of Le Chanteclair restaurant in New York City, recalls that he never overcame his initial distaste for the 3.3 wheel. Dreyfus, and the other drivers as well, objected to the alarming "whack" as the car accelerated or braked, and the slack between the wheel and rim serrations was taken up. Dreyfus complained to Le Patron, but was airily told that the tolerance between the two sets of serrations actually served the useful purpose of taking up some of the shock.

Four 3.3 Type 59's were brought into England in 1935, and these are the only ones known to exist today: two in England, one in America, one in South Africa. Only three are running. The fourth had a tragic history: It caught fire and killed the Duke of Grafton the first time he ran it in the 1930's, and it killed Kenneth W. Bear, an outstanding English Bugattiste, in a post-war hill-climb, and was wrecked beyond repair. Bear's accident was due to brake-linkage failure, giving him a one-side application that put the car through a hut beside the road. Ettore Bugatti always maintained that no driver had ever been killed or seriously injured through a material failure on one of his cars, and as far as I know this was true until Bear lost his life on a ten-year-old automobile.

If the Type 59, in action, has less of the cat-like grace and sheer agility of the variants of the Type 35, still it does own more urge, higher top speed, better brakes, and it is surely one of the most beautiful automobiles ever bolted together by men who were happy in their work.

Ken W. Purdy

(Continued from page 62)

RACING ROLLS?

Two questions: First, will a Porsche Carrera outcorner a Rolls Royce? I realize this is an extraordinary question, but according to statistics, will it? Secondly, which machine has the greater prestige—the Rolls or the Bentley (disregarding cost)? Congratulations on a wonderful magazine.

Pvt. Weldon Roberts
Camp Pendleton, California

Both in practice and theory, the Porsche Carrera will outcorner a Rolls Royce. The low center of gravity of the Porsche reduces the amount of lateral weight transfer in a corner, and thus limits the critical loadings on the outside tires. Also, the much shorter wheelbase is a big help.

Prestigewise, it's worth it to spend the extra 40 bucks to get the Rolls radiator. It's identical to the present Bentley in all other respects, but the Bentley reputation is that of "The Silent Sports Car", which puts it in the class of the reformed criminal, while the Rolls has stood uncompromisingly as "The Best Car in the World".

COOL AIR FEED

I've been considering the idea of providing the SU carbs on my TR2 with an independent supply of cool air. There are quite a few TR's around here with hoods reworked to do this, and this seems to work well. However, I would prefer to keep away from bodywork for this purpose and would rather duct the air through a flexible rubber or steel tube.

It seems to me that the carbs should be stripped of the existing air cleaners and linked by a common air collecting box, fed by a tube running from the front of the engine compartment. Somewhere in the line would be placed a filter, easily accessible for cleaning. Even this would be affected by under-the-hood heat, but I think it would deliver cooler air than does the stock setup. Also, I think this arrangement would create a ram effect in the air delivered to the carbs.

Frank A. McGoveran
Toronto, Ontario, Canada

Hood reworking is a reasonably good approach to the problem for a beginner, since it avoids some of the complications that crop up with direct ducting. The latter method is the most positive, and does pick up the coolest air at the nose if the duct is led out even with the radiator. If you're thinking of ducting from within the compartment, it isn't worth it. A better spot would be the angled wall to the right of the grille, where a hole or scoop could be cut.

A ram effect or pressure buildup at the carbs should be avoided, unless the same pressure is applied to the float bowls and carbs as a whole, since it can greatly upset the mixture balance. The usual symptom is leaning out and power loss as car speed rises. If you're running a duct from the grille to the carbs, either box in the entire carburetor group, leaving grommeted holes for linkages and lines, or, more simply, leave the back end of your duct open to prevent any pressure buildup. That way you still get the cool air without carburetion worries.

Temporary Triumph

(Continued from page 49)

And all this time the wife treated our marvelous little wagon as though it had once hauled lepers. It was all I could do to get her to ride in it, much less talk her into learning to drive it.

"It still looks rather absurd to me," she insisted. "It's so darned petite."

"It matches that $125 green suit," I reminded her, appealing to her vanity.

"Look," she said stubbornly. "I have to ride in your runtmobile, occasionally, because we haven't any other mode of transportation. Going to drive-in movies, at night, I can endure. Being seen in that dehydrated convertible in the broad daylight is a humiliation of another brand. You enjoy the damn thing—okay?"

"But you picked it out!" I protested, bewildered beyond reason, logic and a nagging desire to share my gorgeous possession with my helpmeet.

"I goofed," she admitted with vague clarity.

Came the day when I had to make a business trip by plane. Carefully, sparing no detail, I briefed her—over and over again—on the care and handling of a Triumph TR-3 sports car. Endlessly, I reiterated the sane, conservative procedures of starting, driving and stopping the car. I probably spouted enough words, on parking, cornering and having the Triumph serviced, to fill a practical handbook for Triumph owners. Finally, I departed to woo the gods of commerce—leaving my wonderful little car in her hands. That was a mistake.

I was gone for about two weeks. That was another mistake.

Returning, I found wife, house, Triumph, TV set and appliances all in good order. Nothing untoward had occurred in my absence—or so I thought, dreamer that I was. The awful truth wasn't long in dawning.

One sunny, Saturday morning about a week after getting home—I went out to the garage to get in my Triumph and wheel thrillingly down to the corner store for a pack of smokes.

No Triumph.

Frantically, I raced around—trying to remember if I had put it in the garage the previous night—ending up phoning the police department. Thirty-five minutes later, my outraged wife driving the Triumph, followed closely by a squad car, pulled into our driveway.

"This your car, buddy?" asked one of the officers.

"Y-Yes," I said, "but you see —"

"This dame claims she's your wife," the second officer offered noncomittally.

"She certainly is," I vowed.

"Well, stop bothering the law everytime your wife uses the car, will you?" Both officers looked disgusted and slightly relieved.

Friend wife resembled a thundercloud.

"How was I to know you took the car?" I whispered. "I figured you probably were having coffee, somewhere in the neighborhood, as per usual. Hell, the last I knew—I couldn't get you to steer it into the garage, let alone drive it around town."

"Ridiculous!" she snorted, curling a lip at me. "I've *adored* my Triumph ever since you bought it for me. Oh, I'll confess I was a bit slow in getting accustomed to it, but once I really—"

"Wait a minute! You adore *whose* Triumph?"

"Mine, naturally. Wasn't the idea to buy a car that a girl can park? A car that a wife would have no difficulty handling?" Her smile was venomous.

"Y-Yeah, but, look—"

"You look. You even let me pick it out—remember?"

I remembered—miserably.

Since then, it's been just like that. She insists upon doing the driving—no matter where we're going—and getting the borry of the Triumph is slightly less complicated than obtaining the afternoon's use of a United States Army Tank.

But I'm not licked yet. I started this sports car caper and I'm going to finish it. Besides, I've been quietly stopping by the dealer's to drool on that fine little cream-colored MG (which I really wanted, in the first place), and walking between the dealer's and my house—I've been scheming up Plan B.

If I can convince her that we should have a second sports car to use, say, just in case the time ever comes when the Triumph starts acting up, I've come out winners. And I don't think she'll be difficult to convince: she worries like hell if a car doesn't start instantly.

Well, as they say around Washington, D. C.—it ain't what you know: it's how many wires you can pull.

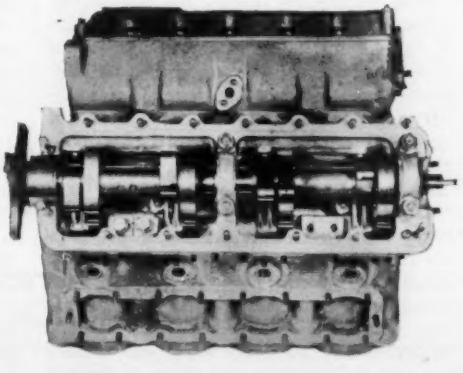
Carl Kohler

Next Month:

HOW THIS WORKS!

Complete details of
DESMODROMIC VALVE GEAR

and other just released Mercedes secrets



Classified

RATE: 25¢ per word. Minimum 10 words. July issue closes April 16th. Send orders and remittance to: SPORTS CARS ILLUSTRATED, 366 Madison Avenue, N. Y. C. 17.

FOR SALE

BUILD Your Own Supercharger — Complete plans and instructions, $1.00. Alanne Products, Box 135, Watertown 2, Conn.

VOLKSWAGEN OWNERS. Service Manuals. Comprehensive. Illustrated. $5.00 Includes Postage. Air-Mail Order For Quicker Delivery. Buckman, 49 Waiatarua Rd., Remuera, Auckland, New Zealand.

RILEY, 1949, 2.5 liter sedan. Completely reconditioned engine 2000 miles ago. Needs paint. Body and interior good. $400 or reasonable offer. Dr. D. W. Huestis, 113 West Glenn Ave., Glenshaw, Penna.

1956 COOPER Climax 1100 cc. Complete with trailer and many spares ready to race. $3995.00. Warren Olson, 631 N. Robertson, Los Angeles 46, Calif.

M.G. CLASSIC 1933 J-2. Original throughout. Body & Chassis excellent, motor fair. Best offer over $950. J. S. Metcalf, M.D., 882 Warwick Lane, Glendale 22, Mo.

OCTIPUS that jumps while you drive. Hang it on the mirror in your car. Choice of Red and White or Black and White. Just mail $1.00 to Jumpy, 601 West "D" Street, Ontario, Calif.

CROSLEY 750cc "Shoestring Special." Race and win Class H with this car you can build for under $200. Instructions $2. Sportscar, Box 711-G, Columbus 7, Ohio.

JAGUAR owners, Healey owners: Stainless Steel Flexible Exhaust Tubing Permanent replacement between exhaust pipe and muffler. Complete with heavy-duty clamps. Healey $5.50, Jaguar $5.95 (modified requires two) postpaid. Quantity inquiries invited from dealers. Wilco, P.O. Box 1128-S, Rochester 3, N. Y.

AUTOMOTIVE EQUIPMENT

THE Truth about Speed-Power-Mileage Equipment. Free Catalog. Write! Almquist Engineering, Milford SC2, Pennsylvania.

SPORTS CAR BODIES

FIBERGLAS Sports Bodies — Easily bolts on Crosley, Fiat, etc. — $295. Jaguar, Ford, Chev, etc. — $495. Free Brochure. Almquist Engineering, Milford SC4, Pennsylvania.

MISCELLANEOUS

BINOCULARS repaired, all makes and models. Authorized Bausch & Lomb, Zeiss, Hensoldt, and Bushnell dealer. Tele-Optics, 5514 Lawrence, Chicago 30, Illinois.

NOW Dismantling — All types foreign cars Jaguar, Porsche, VW, MGTD, MGTC, MGTF, Alvis, Anglia, Austin, Healey, Counsul, Hillman, Jowett, Morris, Renault, Rover, Singer, Sunbeam, TR-2. All inquiries welcomed. We deliver anywhere. Sherman Way Auto Wreckers, 12643 Sherman Way, No. Hollywood, Calif. Po-50360, St. 75479.

DECALCOMANIAS — Dash Plaques — Suede Club Emblems Letterheads — Envelopes — Comm' Art in Advertising. Rob-Roy Graphic Arts, Box 43 — Sta. B, Canton 6, Ohio.

500cc BUILDERS!! Plans and instructions for Formula III racing car. $5.00 ppd. Send for list of parts. Dane Racing Cars, 13015-C Lorne St., North Hollywood, California.

HIGH Paying Jobs: Foreign, USA. All trades. Travel paid. Information. Application forms. Write Dept. 22K National, 1020 Broad, Newark, New Jersey.

Nassau

(Continued from page 39)

lowed. Masten Gregory took the second 5-lap heat handily, and was followed by Howard Hively's Mondial and Ed Crawford's Porsche Spyder. Carroll Shelby won the third by five seconds over John Fitch (D-Jaguar). Phil Hill followed just a second behind and closing fast from a poor start. Portago had locking brake troubles and was seventh behind the three D's of Louis Brero, Ernie Erickson and George Constantine.

The Governor's Cup Race had been split into two 70-mile sections after beefs from previous years over the large starting field. (A similar beef this year caused the R.A.C. steward to limit the starting field in the big race).

In the first section for smaller cars, Masten Gregory looked to be the winner leading easily for most of the distance, but a pinched tube gave him a flat tire and after a pit stop he could not do better than fourth. Howard Hively (2-liter Ferrari) took the checker first with Ken Miles, who did so well all week-end in the Pooper, second and Ed Crawford (Porsche Spyder) third. Jay Chamberlain (Lotus) once again turned in a sterling performance and was eighth over-all far ahead of the other class G boys.

Things had started very late on Friday and the quick tropical darkness was obviously not far away when the second half of the Governor's Cup Race was flagged off. There had been no provision for night racing and the contestants had not been advised to untape their headlights. In fact they were told that the race would be stopped if it got dark. It wasn't stopped and it got very dark. Shelby couldn't figure out the trick switch on the Ferrari and had only parking lights for several laps. Finally he managed one dim one. Fitch had aluminum plates over his lights. Shelby led most of the way using the superior speed and acceleration of the unwieldy 4.9 to keep ahead of Portago who could out-brake and out-corner him in the 3.5 Ferrari. But Portago passed him as the darkness deepened. Then what the Marquis thought was a disabled car off the course turned out to be a dimly lighted but mobile Austin Healey. He slid into it, smashing in the rear of the Ferrari and letting Shelby by. That's the way it finished: Shelby first with Portago (who had flicked off his lights in an effort to again creep up on Carroll) two seconds behind. Louis Brero (D-Jag) was third, John Fitch (D-Jag) fourth. Ebby Lunken, who did very well by his 2.5 liter Ferrari all during the meeting, was eighth over all, first in class D.

On Sunday, the day of the big race, there was a preliminary go of fifteen laps for the slower cars, keeping the field in the main race under fifty. (Forty-two cars actually got away with twenty-three finishing). The fifteen-lapper was won by Marty Malarkey in a Mercedes 300SL and second was Jan de Vroom in the Gran Tourismo Ferrari coupe. Paul Gougelman was third in an Ace Bristol. What should have been Malarkey's stiffest competition, Paul van Antwerpen in another Mercedes 300SL (the last to actually finish), limped across twenty third leaking oil like a faucet. It was good for a second to Moss in Class D.

Next came the 210-mile Nassau Trophy Race. There was some confusion as to just who was actually in motion first on the Le Mans start. Some say Moss, some say Shelby. Certainly it was Shelby across the line first, since his starting position was closer to it.

Moss took the first few laps (in second behind Shelby) to scrub up his new tires a bit and get used to the car. He had driven it a total of four laps on practice day. Then he began to move up on Shelby who was herding the big 4.9 with a painfully injured right shoulder. (He had chipped a bone while playing touch football with a cocoanut.) Moss passed Shelby on the eleventh lap and on the twelfth the lean Texan limped his car, on a flattened tire, to the pits—the first of three stops. The last one, on the thirty-seventh lap after he had worked his way back ino second again, finished him. The car, a handful anyway, just wasn't handling right. Moss was never headed, never even threatened again. He came into the pits on the 44th of the 60 laps to get some oil—the gauge needle was wavering a bit and he had a full lap on everyone at the time.

Meanwhile, Moss' opposition knocked themselves out. John Fitch, while in second place in Briggs Cunningham's bored-out D-Jaguar (3820 cc) had to quit with the gear box locked in second. Portago (3.5 Ferrari) went through his tires and came in for more. Phil Hill, (3.5 Ferrari) taking care not to slide his tires too much on the turns, got tangled up with an oil barrel course marker and retired. Louis Brero (D-Jaguar) made several pit stops.

Masten Gregory turned in what seemed to be an effortless job in the Testa Rossa Ferrari while owner Temple Buell paced from one end of the pit area to the other. Gregory was second at 1:27 behind Moss. The Marquis de Portago, foul-luck notwithstanding, scowled his blue 3.5 Ferrari into third just eight seconds off the pace. Ken Miles, turning in a masterful performance in Johnny Von Neumann's Pooper, was fourth, a lap behind, having overtaken Ted Boynton (Testa Rossa Ferrari) with four laps to go. Boynton, like Gregory, made no pit stops. Miles had one very early in the proceedings. Ed Crawford (Spyder), George Constantine (D-Jag) Howard Hively (2-liter Ferrari), Sam Weiss (Spyder), and Art Bunker (Spyder) finished out the first ten overall. Jay Chamberlain once again turned in a fine show in the fleet little Lotus that designer Colin Chapman was originally scheduled to drive. He was sixteenth overall, first in class G. Fred Windridge, in one of the several Corvettes, did best by General Motors, finishing thirteenth. (There were so many G.M. cars and officials etc. in Nassau, that it became known as "Generous Motors"). Windridge thus won the over 2800 cc "stock production car" (get that) category. The under 2800 cc prize went to Charles Wallace in a Porsche speedster. He finished sixth in the fifteen-lap race.

—Denise McCluggage

PRINTED IN U.S.A.

Britain's Pride...America's Favorites...

The new Austin-Healey 100-Six

New six cylinder engine...
two-tone color finishes...
New body design with an "occasional" rear seat!

Safety fast with an MGA

Superb sports-car performance
and styling at modest cost.
The safest, fastest MG ever engineered!

Products of BMC
Makers of MG, AUSTIN-HEALEY,
MAGNETTE, MORRIS, AUSTIN and RILEY Cars.
Represented in the United States by —

hambro AUTOMOTIVE CORPORATION

27-29 W. 57th St., New York 19, N. Y.
Sold and serviced by a nationwide network of distributors and dealers.

The Corvette above is a very civilized vehicle—and hides its secret well. Cruising along the boulevards, whispering past the glitter of café lights, it drifts like a well-mannered dream. It is the epitome of luxury, sweetly sprung, hush-voiced, deep-cushioned, endowed with every convenience artful craftsmen can devise.

But a good many people have discovered to their very genuine surprise that this suave elegance conceals a savage competence. For this is a *sports car*, in the accurate meaning of the term. It is a perfectly docile (and perfectly delightful) town car and touring car. But it also can erupt, instantly, into a full-bore competition car.

Our British cousins and Continental friends have become painfully aware of this—at Pebble Beach, Elkhart Lake, Seattle Seafair, Palm Springs and other sports car gatherings. You can understand their surprise; after all, you don't expect to find a tiger under a tuxedo. But that is the Corvette's unique contribution to motoring—a perfectly harmonious blend of ultimate luxury and blazing road*ability*, all in one polished instrument.

There's never been a combination like this—and you can savor it for yourself at your Chevrolet dealer's. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

CORVETTE

by Chevrolet